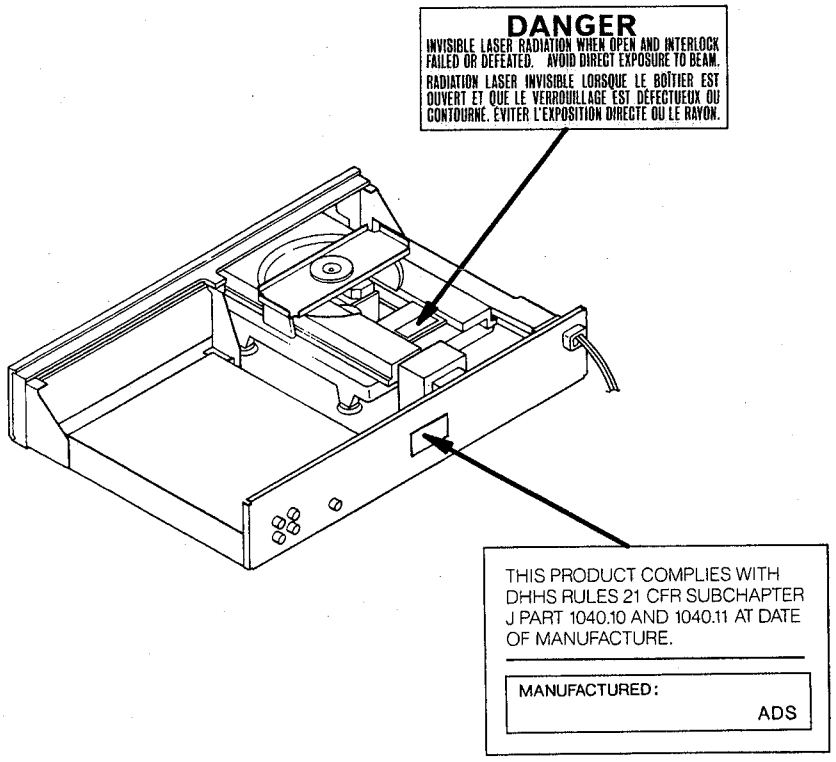
# NAD SERVICE MANUAL

STARTING SERIAL NUMBER A 0X 54400001

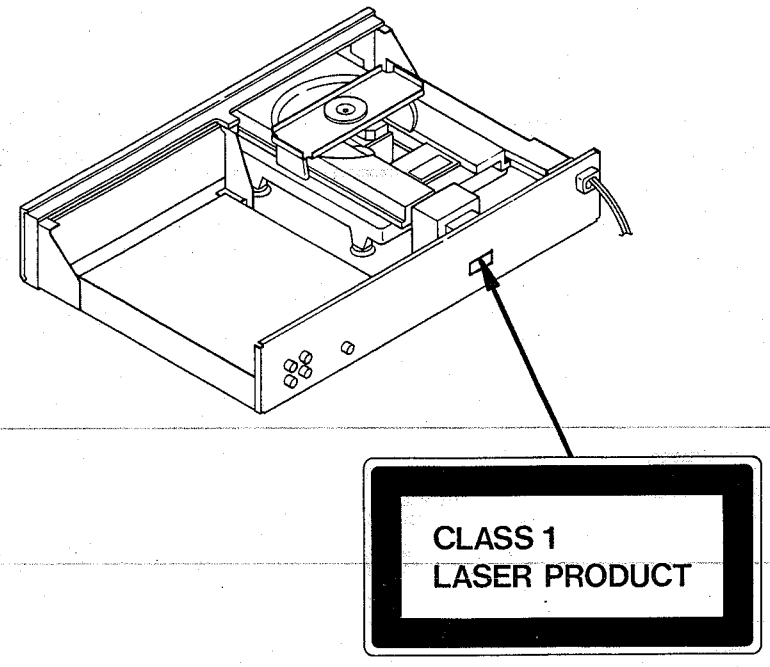
# 5440

## COMPACT DISC PLAYER

## SAFETY INFORMATION

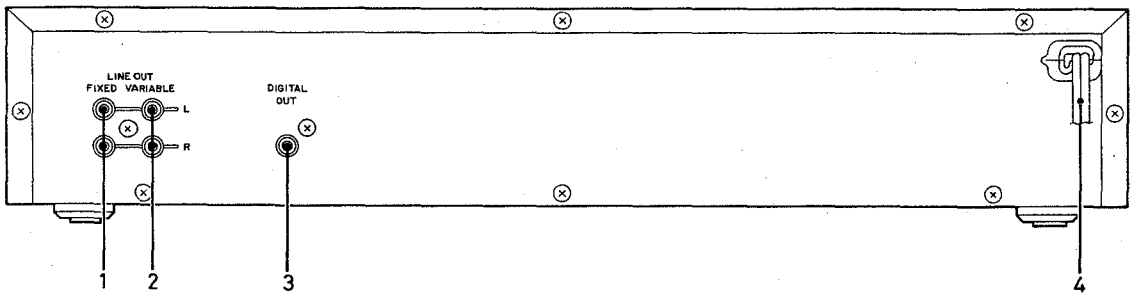

DANGER
INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.
RADIATION LASER INVISIBLE LORSQUE LE BOÎTIER EST OUVERT ET QUE LE VERROUILLAGE EST DÉFECTUEUX OU CONTOURNÉ. ÉVITER L'EXPOSITION DIRECTE OU LE RAYON.
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J PART 1040.10 AND 1040.11 AT DATE OF MANUFACTURE.
MANUFACTURED:
ADS

## CAUTION



## REAR PANEL

1. Fixed-level out put jacks.
2. Variable-level output jacks.
3. Digital output jack.
4. AC line cord.

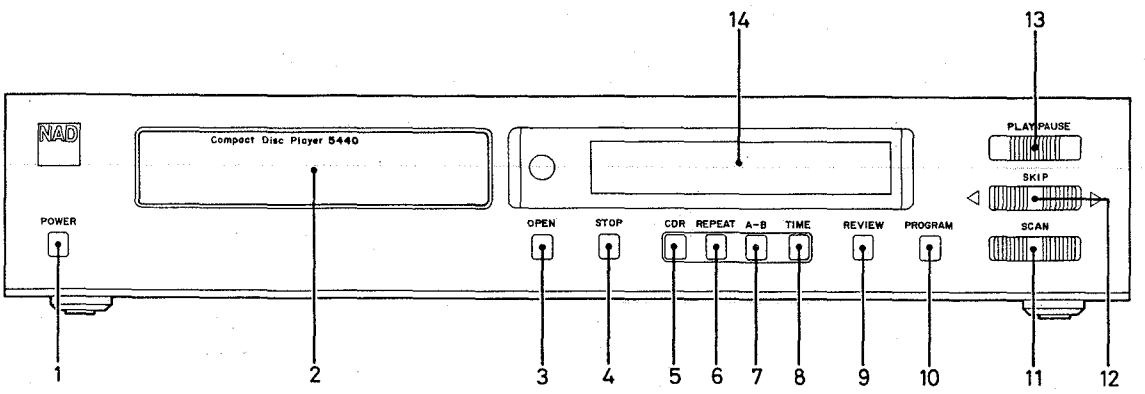



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## FRONT PANEL

1. Power on/off.
2. Disc drawer.
3. Open/close.
4. Stop
5. CDR (controlled dynamic range).
6. Repeat.
7. Repeat A–B.
8. Time display selector.
9. Review.
10. Program mode.
11. Scan forward/back.
12. Skip forward/back.
13. Play/pause.
14. Display.



## CONTENTS


Page

SPECIFICATIONS ..... 4
SERVICE SAFETY PRECAUTIONS (UL) ..... 5
DISASSEMBLY ..... 6
INSTRUCTION FOR HANDLING OPTICAL SYSTEM BLOCK PICK-UP ... 7
PRECAUTIONS FOR CHECKING BEAM EMISSION OF LASER DIODE ... 7
PICK-UP REPLACEMENT ..... 8
ALIGNMENT PROCEDURES ..... 11
TROUBLE SHOOTING GUIDE ..... 16
WIRING DIAGRAM ..... 25
BLOCK DIAGRAM ..... 27
PCB LAYOUT ..... 29
SCHEMATIC DIAGRAM ..... 33
EXPLODED VIEW AND PARTS LIST ..... 35
PACKING DIAGRAM ..... 39
ELECTRICAL PARTS LIST ..... 40


## SPECIFICATIONS

### General

| | |
|---|---|
| Sampling Frequency | : 44.1 kHz |
| Quantization Number | : 16 Bit Linear/Channel |
| Transmission Bit Rate | : 4.3218 MB/sec. |
| Error Correction | : CIRC C1, C2 Double Correction |

### Pick-up

| | |
|---|---|
| System | : Object Lens Drive System Optical Pick-up |
| Object Lens Drive System | : 2-Dimensional Parallel Drive |
| Optical Source | : Semiconductor Laser |
| Wave Lenght | : 780 nm |
| Tracking System | : 3-Beam Tracking Servo Type |

### Others

| | |
|---|---|
| D/A Converter | : MASH (Multi stage noise shaping modulation) Two separate 18 bit DAC built in 4-times over samplingdigital filter |
| Analog Filter | : 5 poles active |

## Electrical (at Fixed Output)

| Test Item | Unit | Nominal | Limit |
|---|---|---|---|
| Output Level ( 1 kHz, 0 dB) | (V) | 2 | +0.3/−0.1 |
| Distortion and Noise at 1 kHz (with Filter 30 kHz, at 0 dB) | (%) | 0.0045 | 0.006 |
| S/N Ratio with Filter curve A | (dB) | 105 | 95 |
| Frequency Response 20 Hz−20 kHz | (dB) | +0/−0.3 | +0/−0.5 |
| Channel Separation 1 kHz−10 kHz | (dB) | 110 | 95 |
| De emphasis Error 1 kHz−16 kHz | (dB) | ±0.2 | ±0.8 |

Power Consumption : 16 W
Dimensions : Width 420 mm (16.53 in.)
: Height 83 mm (3.27 in.)
: Depth 298 mm (11.78 in.)
Net Weight : 4.3 kg (9.5 lb)

**Note:** Nominal specs represent the design specs: All units should be able to approximate these some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet Limit specs.

## SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations, marked "⚠".
2. Return lead dress to original position, and re install protective covers.
3. Before returning to customer, test for shock hazard; use either method A or B:
   A. Leakage test, "cold" :
      1. Unplug AC cord; turn power switch ON.
      2. Connect one lead of High Voltage Insulation Tester to both prongs of AC plug.
      3. Touch other lead to all exposed metal parts.
      4. Impedance measurement must be 0.3 − 5.0 Megohms.
   B. Leakage test, "live" :
      1. Plug unit directly into AC outlet; do not use isolation transformer.
      2. Connect one lead of Leakage Current Tester to earth ground.
      3. Touch other lead to all exposed metal parts.
      4. Leakage measurement must be less than 0.5 milliamps.

## DISASSEMBLY

1. Remove nine screws (A) holding the metal cover.

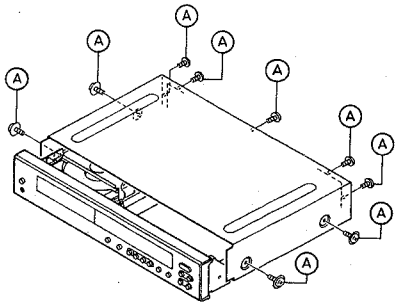



Figure 1

2. Turn power on and open tray.
   Remove tray cover.
   Close tray and turn power off.
3. Remove eight screws (B) holding the front panel.
4. Remove eight screws (C) holding the display switch PCB.

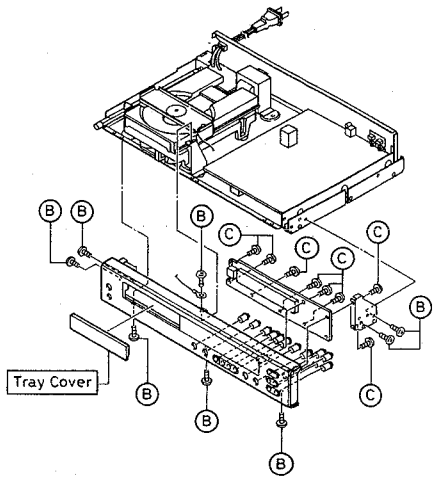



Figure 2

5. Remove five screws (D) holding the rear panel.
6. Remove six screws (E) holding the main PCB.
7. Remove three screws (F) holding the CD mechanism.
8. Remove two screws (G) holding the power supply PCB.

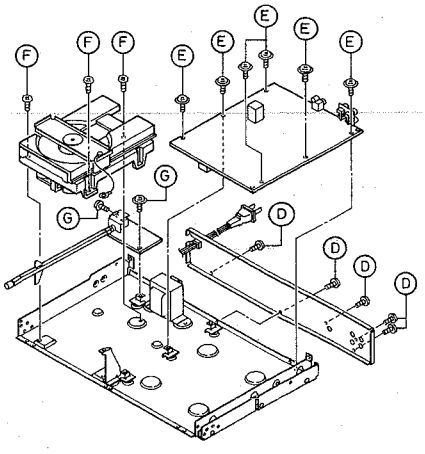



Figure 3

## INSTRUCTION FOR HANDLING OPTICAL SYSTEM BLOCK PICK-UP

Electrostatic breakdown of the laser diode in the optical system block may occur due to a potential difference caused by electrostatic charge accumulated on clothing, human body, etc.
A ground must be provided as follows to prevent any electrostatic charge during unpacking or repair work.

### 1. Ground for Human Body

Be sure to wear a grounding band (1 Mohm) that is properly grounded to remove any static electricity that may be charged on the body.

### 2. Ground for Work bench

Be sure to place a conductive sheet (1 Mohm) or copper plate with proper grounding on the work bench or other surface on which the pick-up is to be placed.

3. Because the static electricity charge on the clothing does not discharge through the body grounding band, do not let clothing contact the pick-up unit.

INCORRECT

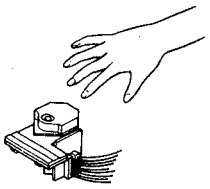


Figure 4

CORRECT

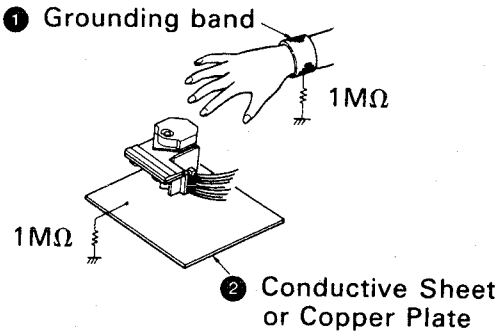



Figure 5

**Note:** Laser diodes are so susceptible to damage from static electricity that even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly.

## PRECAUTIONS FOR CHECKING BEAM EMISSION OF LASER DIODE

The laser beam of this unit is focused on the reflecting surface of the objective lens in the optical system block. Therefore, keep your eyes at least 12 inches (30 cm) away from the objective lens when the laser diode is ON.
[Operation Check Method for Laser Diode and Focus Search Function]
When the POWER switch is turned ON after the chucking arm is removed, observe the objective lens and confirm that the following operations are performed properly.
(The optical system block should be at the lead-in area position when it is checked at this time.)
(1) The laser should be at the innermost position after the chucking arm is removed.
(2) The diffused light of the laser beam can be seen when the POWER switch is turned ON.
(3) Vertical (up and down) movement of the objective lens (2 or 3 times) will take place.

## PICK-UP REPLACEMENT

**Caution:**

Laser diodes are extremely susceptible to damage from static electricity. Even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly. When replacing the pick-up, use a conductive mat, a grounded soldering iron, and so on, to protect the laser diode from static damage.

1. Remove the CD mechanism assembly by referring to Disassembly Instructions.

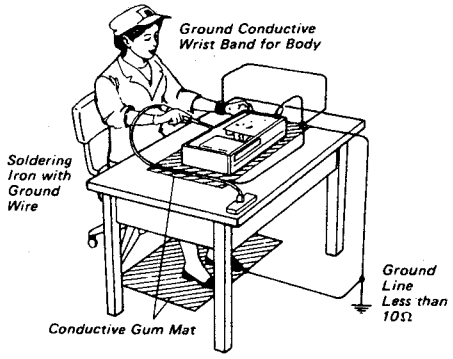



Figure 6

2. Remove two screws Ⓐ holding the clamper base. (See Figure 7)

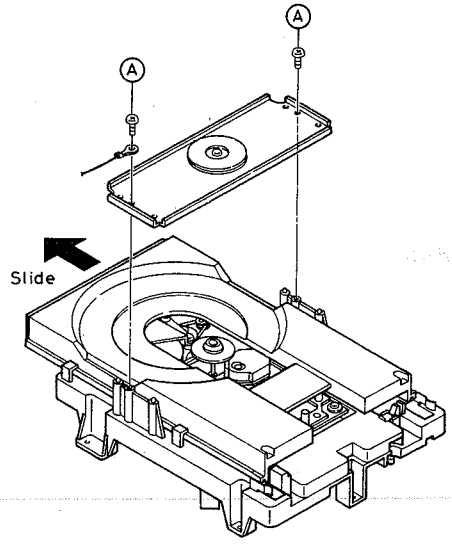



Figure 7

3. Turn loading gear clockwise with a small screwdriver (max. 1/ 2turn) while pulling the tray slightly. (See Figure 8)

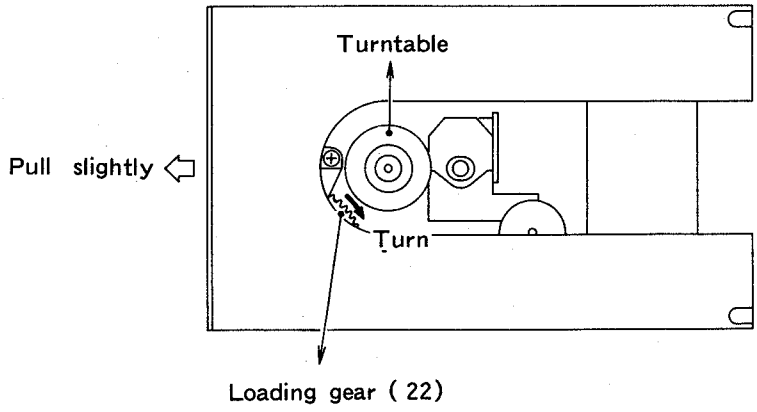



Figure 8

4. Remove washer Ⓓ holding the gear and remove the gear. (See Figure 9)

5. Remove two screws Ⓔ . (See Figure 9)

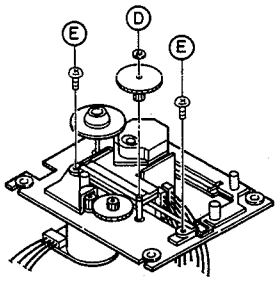



Figure 9

6. Take out the pick-up ①. Than pull out the shaft ②. (See Figure 10)

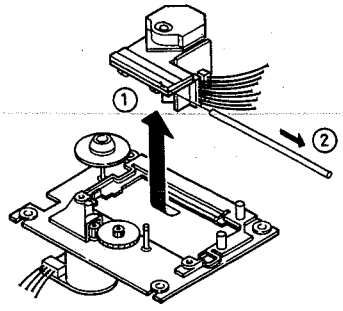



Figure 10

7. Place shorting round as shown in Figure 11 and remove both wire connectors.

8. Unpack new laser.

9. After you connect the wire connectors, desolder and remove the shorting tab. (See Figure 11)

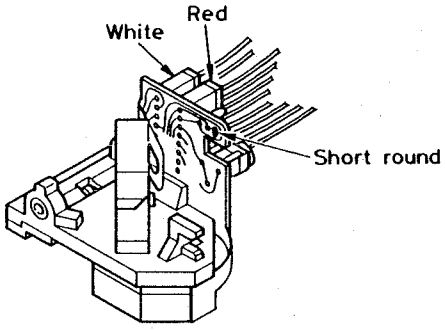



Figure 11

(Serial No. 54400001~54404000)

D-77-LMI

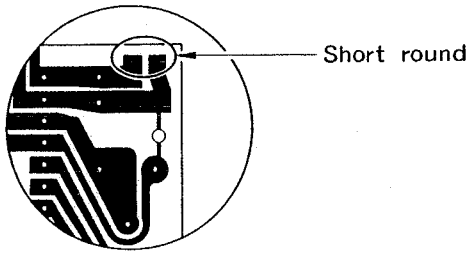



Figure 11—1

(Serial No. 54404001~)

KSS-210A

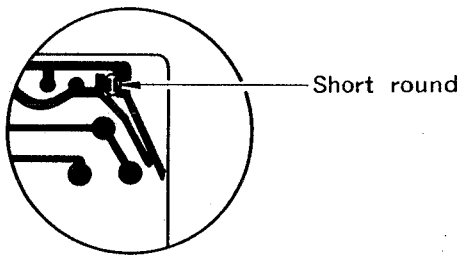



Figure 11—2

10. Replace shaft and pick—up.

11. Replace two screws (E).

12. Replace gear and washer (D).

13. Push tray back to the original position.

14. Replace two screws (A) holding the clamper base.

15. Replace the c.d.mechanism.

16. Refer to the drawings of the exploded view of the compact disc mechanism on page 35 for detailed information.

## ALIGNMENT PROCEDURES

### Measuring instruments

Oscilloscope (Which has a bandwidth of 50 MHz or greater)
Audio frequency oscillator (AF-OSC)
Frequency counter (Counter)
Test disc : SONY YEDS-7
Special circuit

### TEST MODE Setting Procedure and Key Operation on TEST MODE

Precedure :

TEST MODE is set after next operation.
After shorting TP115 (TMD) and TP114 (GND), push Power Switch on.

### Key Operation on TEST MODE

Key No.

| | | |
|---|---|---|
| 1 | " OPEN " | : Open and close the tray. |
| 2 | " STOP " | : Reset and initialize. |
| 3 | " CDR " | : Set the pick-up to the home position. |
| 4 | " REPEAT " | : Emit the power and start focus searching. |
| 5 | " A—B " | : Start the disc motor. |
| 6 | " TIME " | : Switch the tracking servo on/off. |
| 7 | " REVIEW " | : Switch the sled servo on/off. |
| 8 | " PROGRAM " | : Move the sled motor forward. |
| 9 | " SCAN " | : 10-Track jump forward. |
| 10 | " SCAN " | : 10-Track jump backward. |
| 11 | " SKIP " | : 100-Track jump forward. |
| 12 | " SKIP " | : 100-Track jump backward. |

### Main PCB Test Points

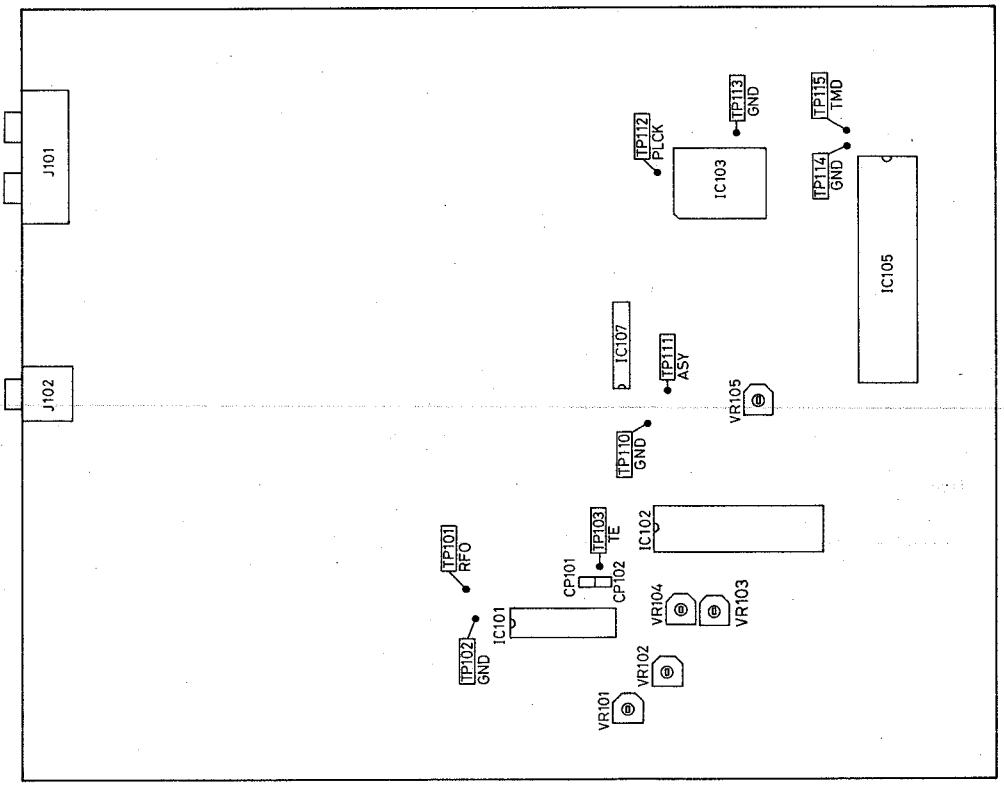



Figure 12

## Special Circuit

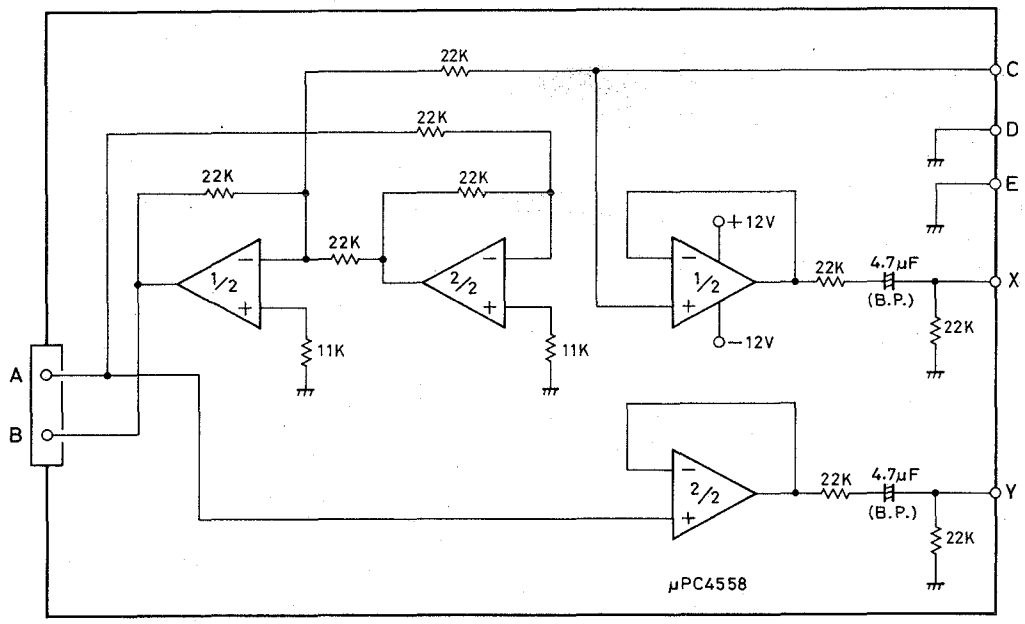



Figure 13

## Focus and Tracking Gain Setting

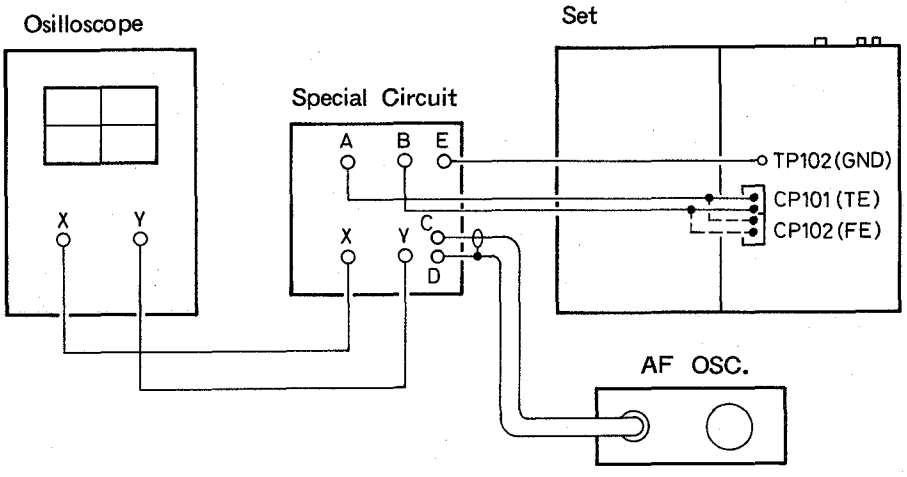



Figure 14

## Adjustment of Focus Offset

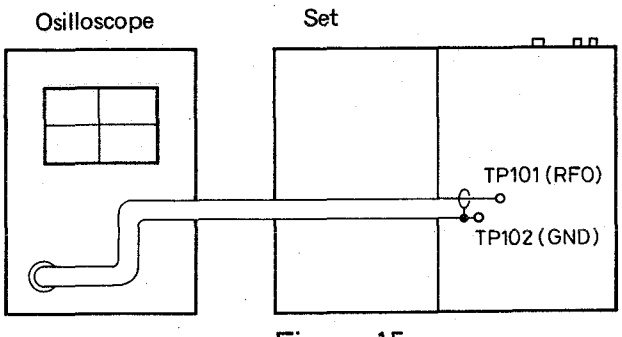



Figure 15

## Adjustment of E-F Balance

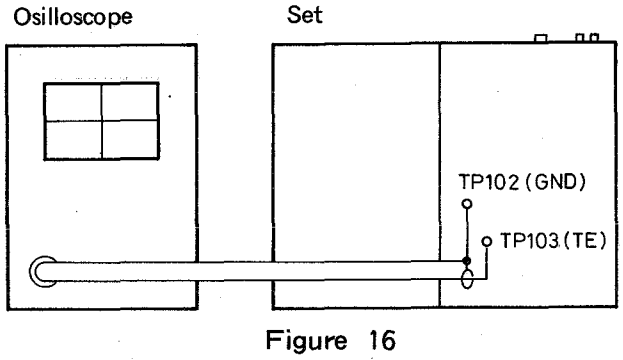



Figure 16

## Adjustment of PLL

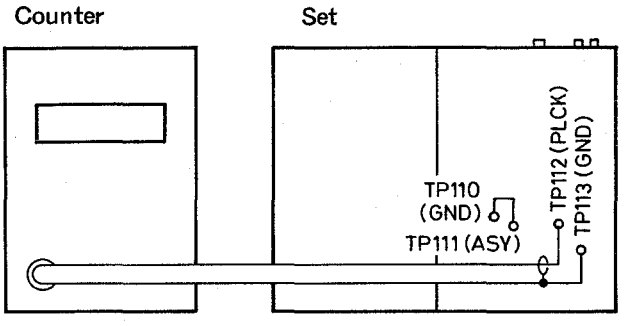



Figure 17

## Adjustment of Focus Servo

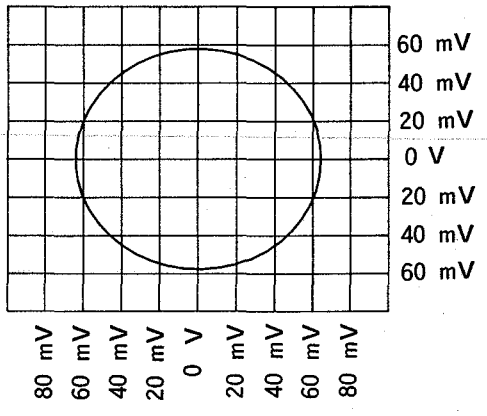
### Focus Gain Setting

1. Remove the short ring from CP 102 of the set.
2. Connect oscilloscope, special circuit (Figure 13), AF—OSC and the set as shown Figure 14.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE (Ref. TEST MODE setting procedure and Key operation on TEST MODE).

5—1. Apply the sine wave signal of 1.8 kHz, about 150 mVrms from the AF—OSC.
(Audio technica Pick—up : Serial No. 54400001～54404000)

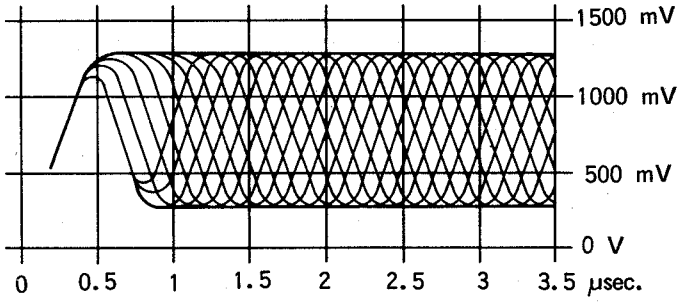
5—2. Apply the sine wave signal of 1.3 kHz, about 100 mVrms from the AF—OSC.
(Sony Pick—up : Serial No. 54404001～)

6. Adjust VR103 to make the lissajous's waveform circularly.



## Adjustment of Focus Offset

1. Join CP102 of the set with the shortring.
2. Connect oscilloscope to the set as shown Figure 15.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE.
5. Adjust VR102 to make the eye patterns which has the maximum amplitude and the biggest diamond windows.




The above is an example of good eye pattern.
The diamond windows in the center portion are large and clear.

## Adjustment of Tracking Servo

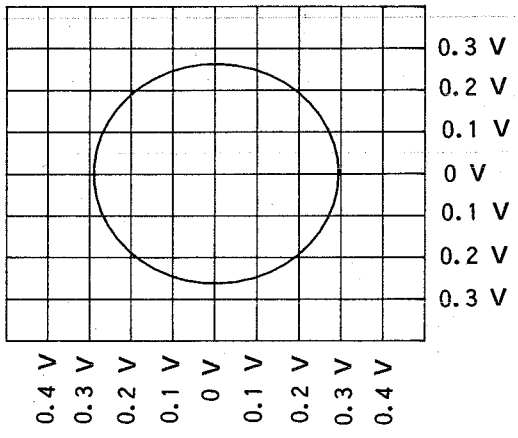
### Tracking Gain Setting

1. Remove the shortring from CP101 of the set.
2. Connect oscilloscope, special circuit (Figure 13), AF—OSC and the set as shown Figure 14.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE.

5—1. Apply the sine wave signal of 1.6 kHz, about 500 mVrms from the AF—OSC.
(Audio technica Pick—up : Serial No. 54400001～54404000)

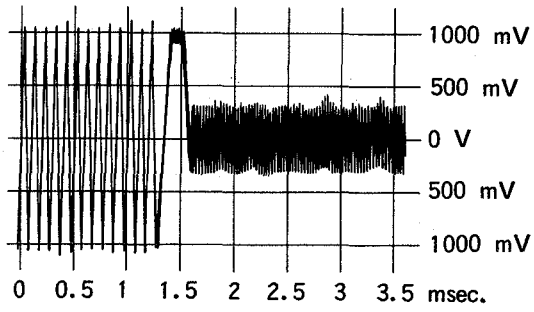
5—2. Apply the sine wave signal of 1.15 kHz, about 400 mVrms from the AF—OSC.
(Sony Pick—up : Serial No. 54404001～)

6. Adjust VR104 to make the lissajous's waveform circularly.



## Adjustment of E-F Balance

1. Join the shortring to CP101 of the set.
2. Connect oscilloscope to the set as shown Figure 16.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 6 in order of Key No. on TEST MODE and Tracking servo off.
5. Adjust VR101 to make the waveform symmetrically on the oscilloscope screen.




## Adjustment of PLL (Phase Lock Loop)

1. Short TP110 (GND) and TP111 (ASY) of the set and connect frequency counter to the set as shown Figure 17.
2. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
3. Press Key from No. 1 to No. 3 in order of Key No. on TEST MODE.
4. Adjust VR105 to show the counter reading is about 4.32 MHz.
5. Open TP110 and TP111 of the set and press Key from No. 4 to No. 7 in order of Key No. on TEST MODE.
6. Reconfirm the counter reading is within 4.3218 MHz ±0.0025 MHz.

## TROUBLE SHOOTING GUIDE

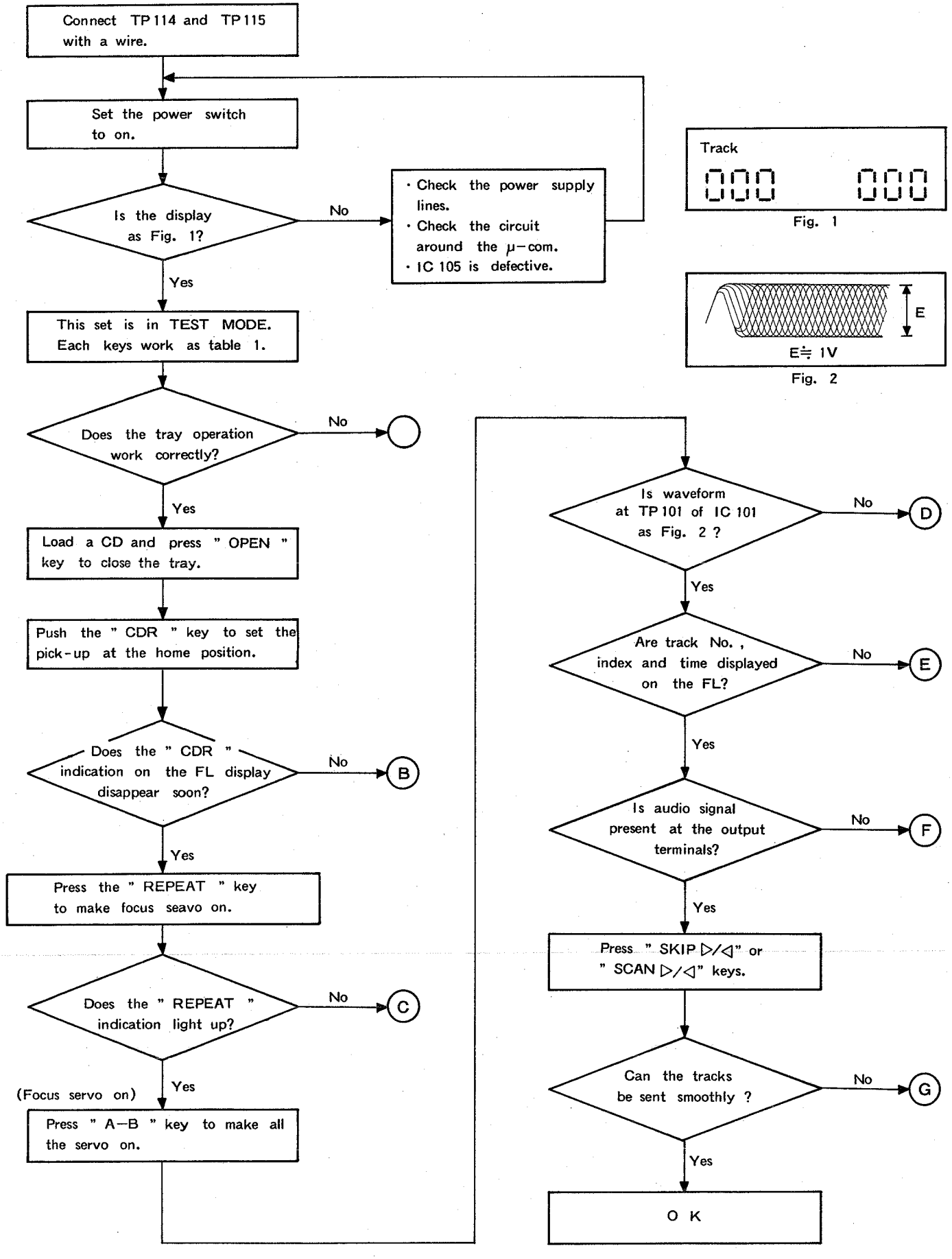

Connect TP114 and TP115 with a wire.
Set the power switch to on.
Is the display as Fig. 1?
No
· Check the power supply lines.
· Check the circuit around the μ-com.
· IC 105 is defective.
Yes
This set is in TEST MODE. Each keys work as table 1.
Does the tray operation work correctly?
No
Yes
Load a CD and press " OPEN " key to close the tray.
Push the " CDR " key to set the pick-up at the home position.
Does the " CDR " indication on the FL display disappear soon?
No
B
Yes
Press the " REPEAT " key to make focus seavo on.
Does the " REPEAT " indication light up?
No
C
(Focus servo on)
Yes
Press " A-B " key to make all the servo on.
Is waveform at TP101 of IC101 as Fig. 2 ?
No
D
Yes
Are track No., index and time displayed on the FL?
No
E
Yes
Is audio signal present at the output terminals?
No
F
Yes
Press " SKIP ▷/◁" or " SCAN ▷/◁" keys.
Can the tracks be sent smoothly ?
No
G
Yes
O K




Fig. 1

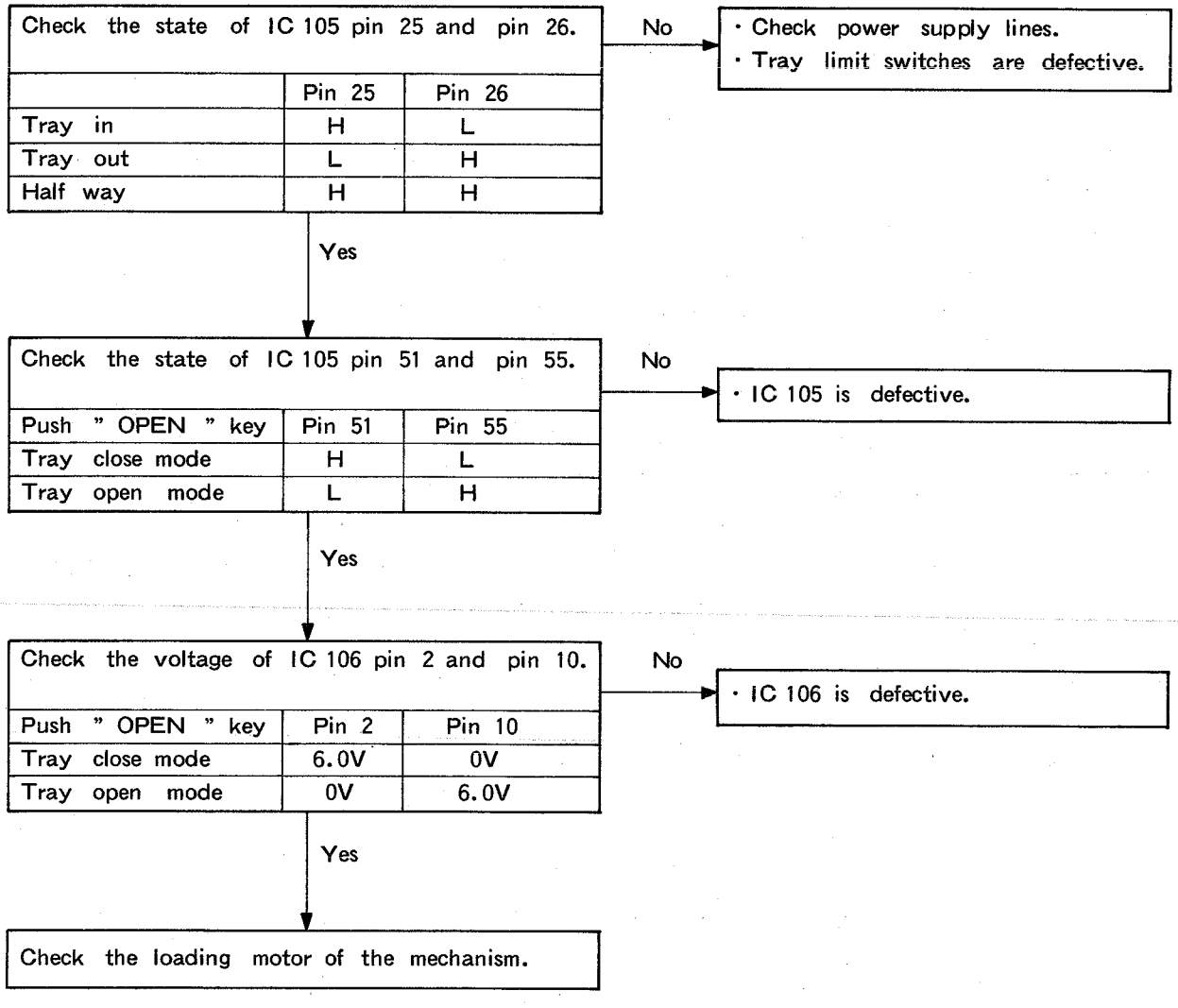



Fig. 2

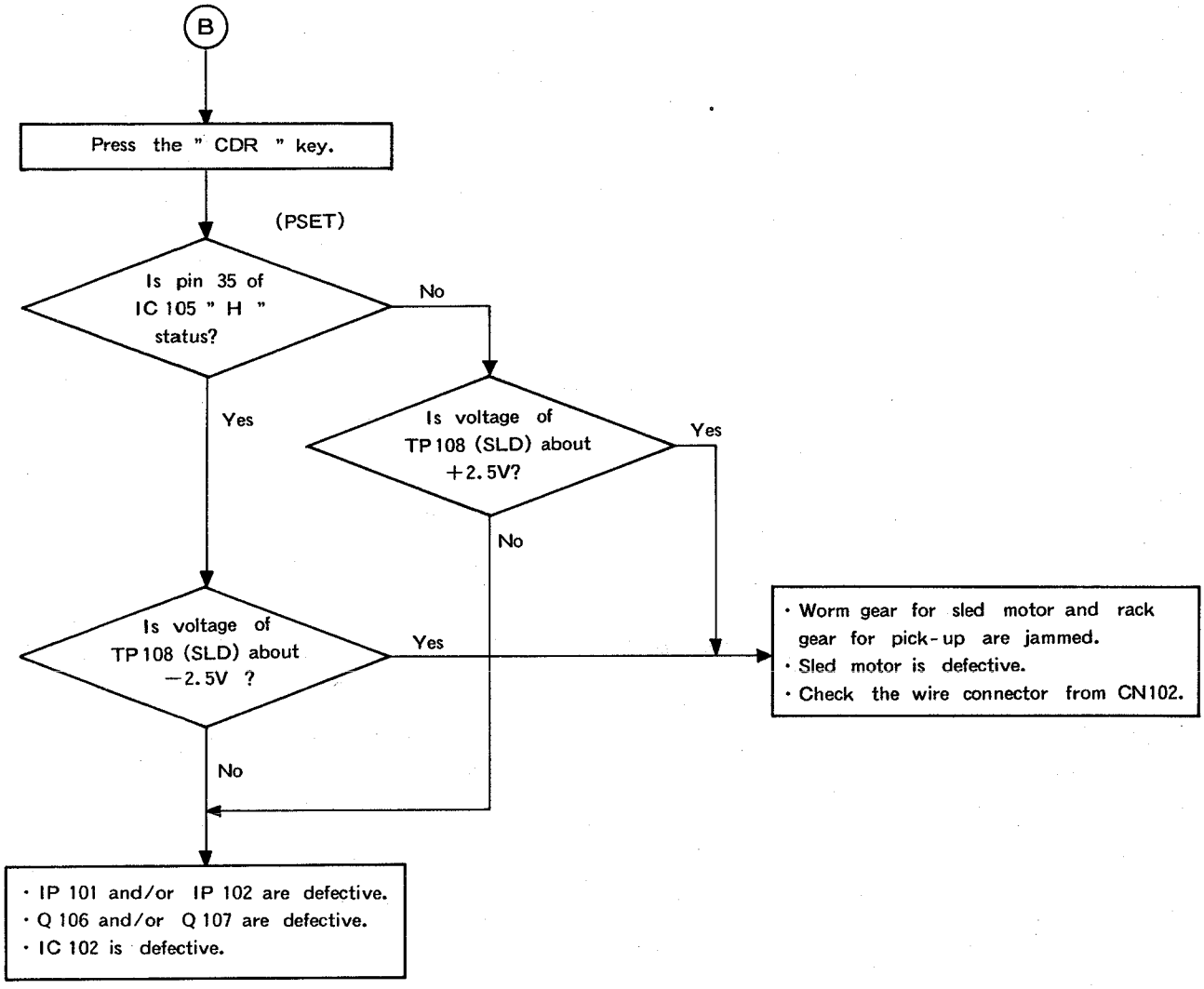
Test Mode Table 1

| KEY | FUNCTION |
|---|---|
| OPEN | Open and close the tray. |
| STOP | Reset and initialize. |
| CDR | Set the pick-up to the home position. |
| REPEAT | Emit the laser power and start focus searching. |
| A—B | Start the disc motor. |
| TIME | Switch the tracking servo on/off. |
| REVIEW | Switch the sled servo on/off. |
| PROGRAM | Move the sled motor forward. |
| SCAN▷<br>◁ SCAN | 10-Track jump forward/back. |
| SKIP▷<br>◁ SKIP | 100-Track jump forward/back. |

[Repair Item (A)] Tray operation do not work correctly.



[Repair Item (B)] The pick-up can not be set at the home position.


B
Press the " CDR " key.
(PSET)
Is pin 35 of IC 105 " H " status?
No
Yes
Is voltage of TP108 (SLD) about +2.5V?
Yes
No
Is voltage of TP108 (SLD) about −2.5V ?
Yes
No
· Worm gear for sled motor and rack gear for pick-up are jammed.
· Sled motor is defective.
· Check the wire connector from CN102.
· IP 101 and/or IP 102 are defective.
· Q 106 and/or Q 107 are defective.
· IC 102 is defective.

## [Repair Item (C)] The Set can not start focus servo.

⚠Take off the tray and the clamper arm, and measure radiation power with a optical powermeter. If a optical powermeter is not available, watch the radiation through the lense of the pick-up with distance more than 30 cm from the pick-up.

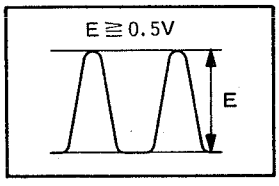



Fig. 3

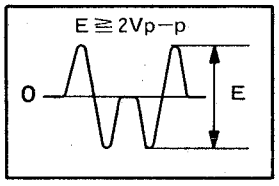



Fig. 4

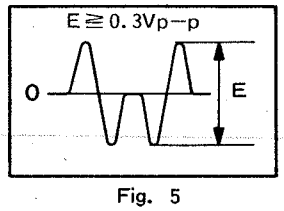
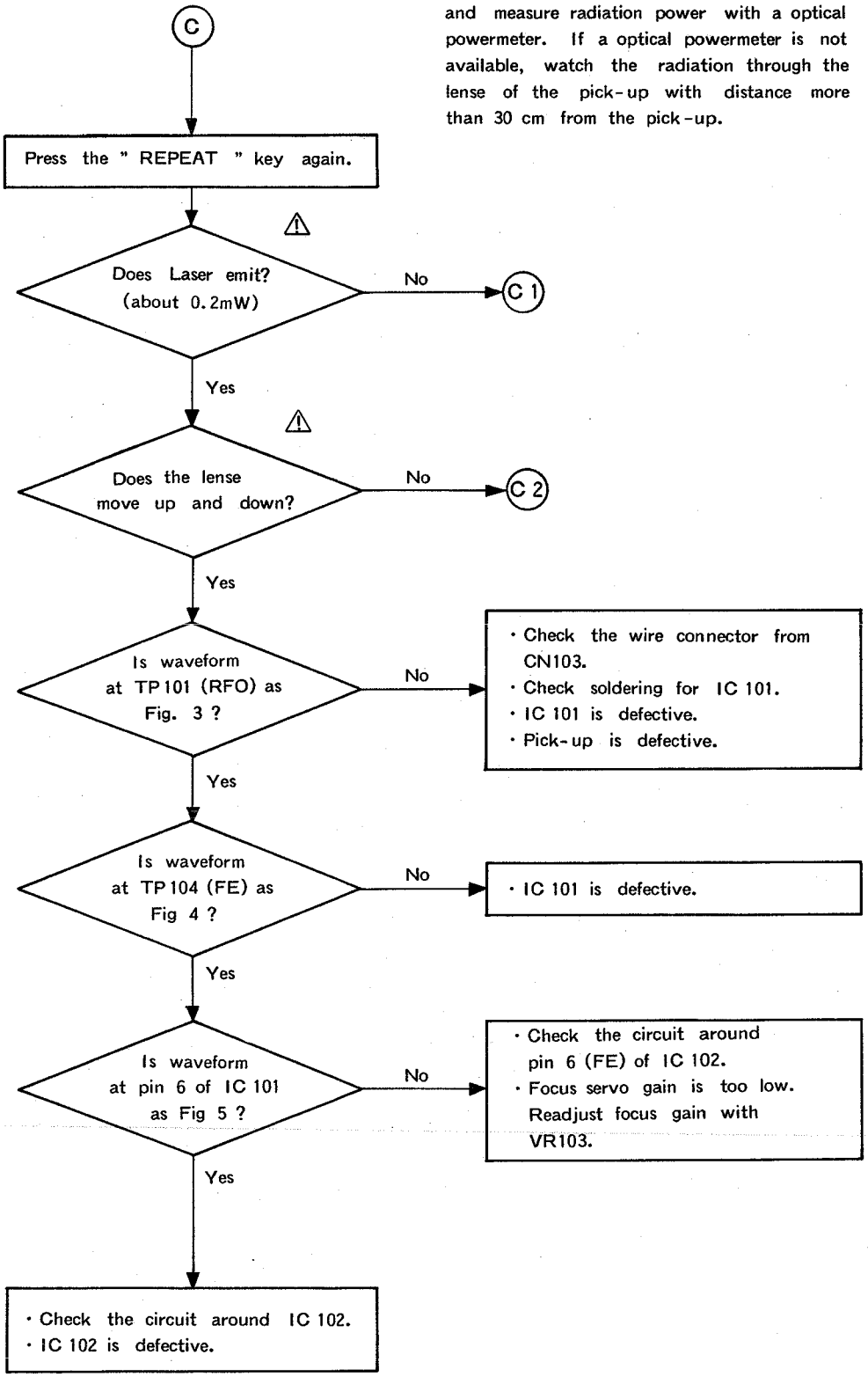
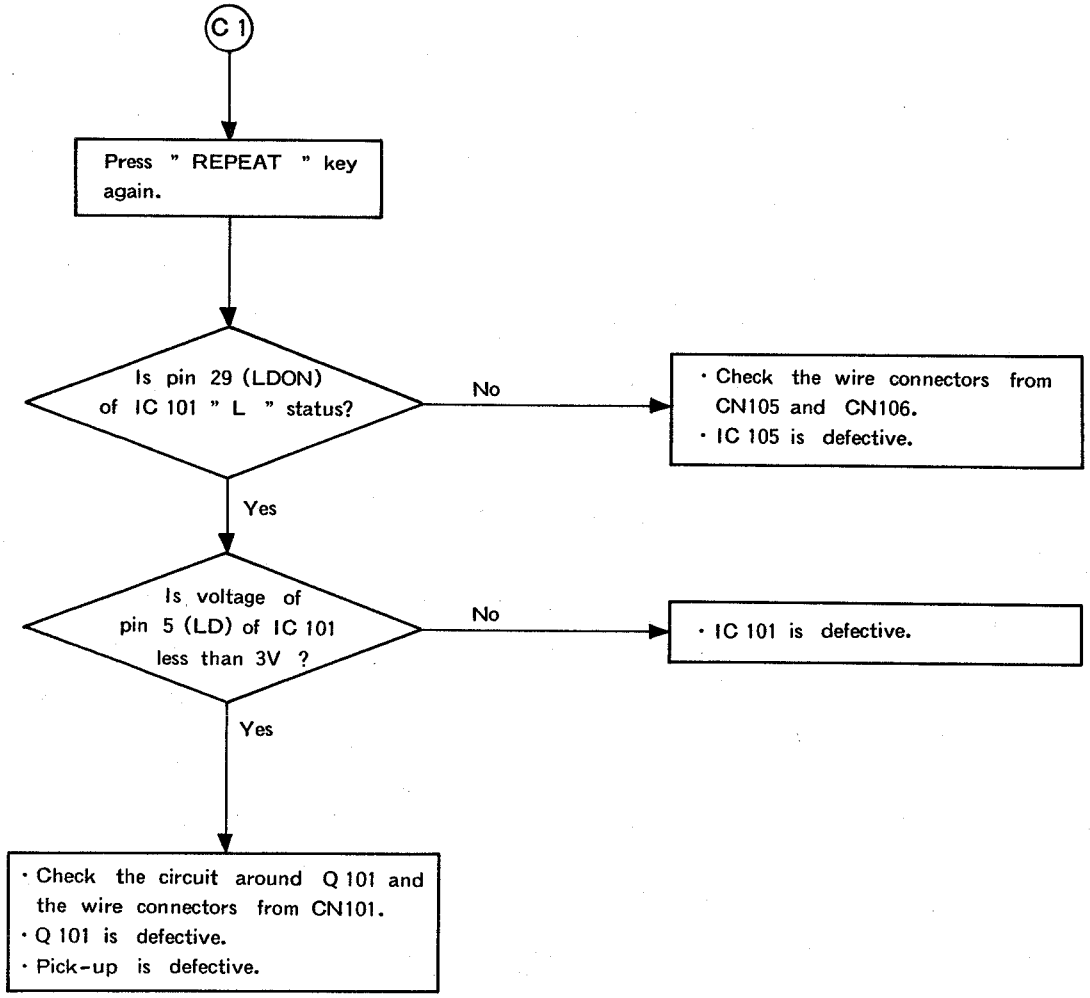


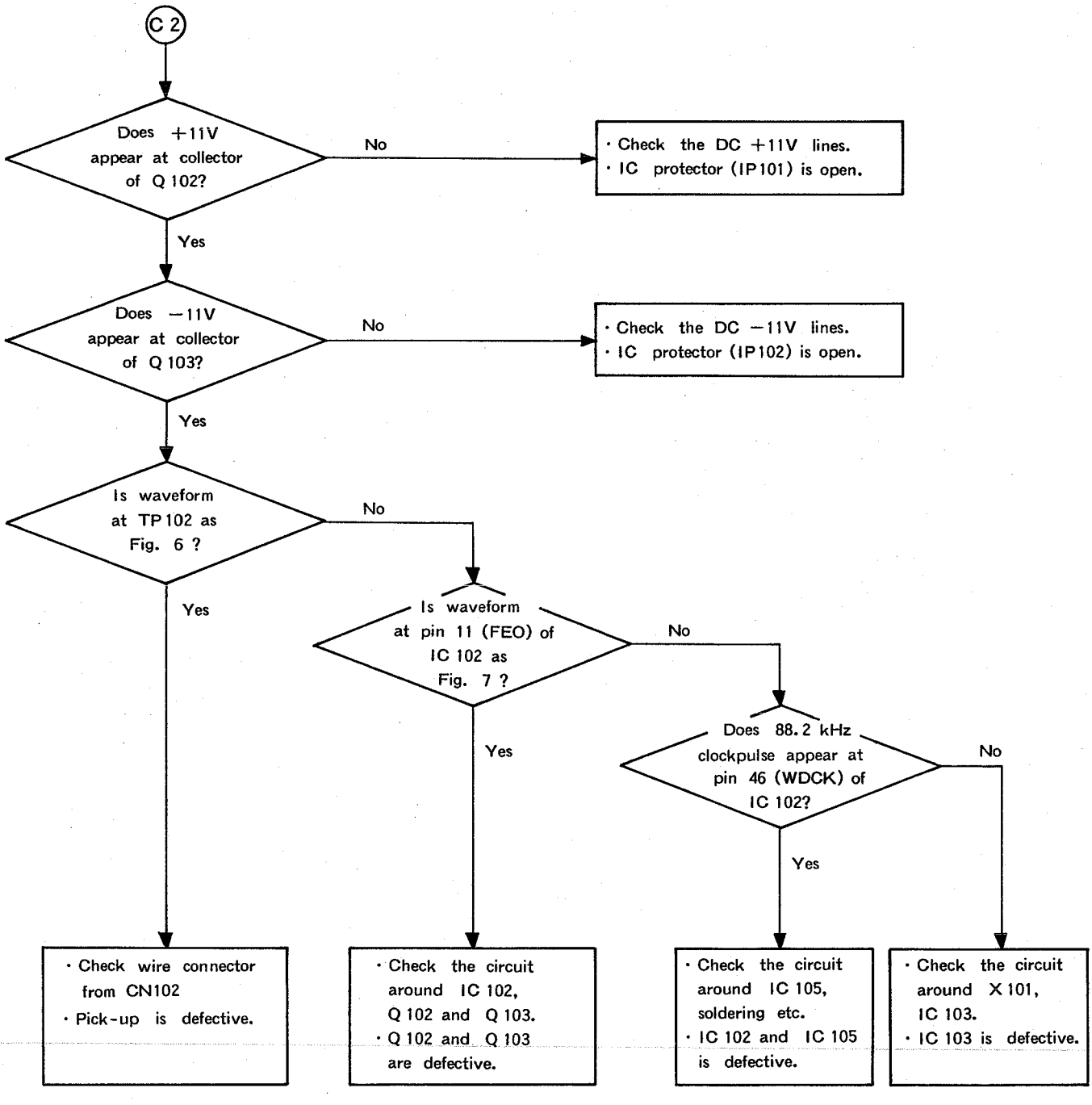

Fig. 5


C
Press the " REPEAT " key again.
⚠
Does Laser emit? (about 0.2mW)
No
C 1
Yes
⚠
Does the lense move up and down?
No
C 2
Yes
Is waveform at TP101 (RFO) as Fig. 3 ?
No
· Check the wire connector from CN103.
· Check soldering for IC 101.
· IC 101 is defective.
· Pick-up is defective.
Yes
Is waveform at TP104 (FE) as Fig 4 ?
No
· IC 101 is defective.
Yes
Is waveform at pin 6 of IC 101 as Fig 5 ?
No
· Check the circuit around pin 6 (FE) of IC 102.
· Focus servo gain is too low. Readjust focus gain with VR103.
Yes
· Check the circuit around IC 102.
· IC 102 is defective.

[Repair Item (C 1) ] Laser does not emit.


C 1
Press " REPEAT " key again.
Is pin 29 (LDON) of IC 101 " L " status?
No
· Check the wire connectors from CN105 and CN106.
· IC 105 is defective.
Yes
Is voltage of pin 5 (LD) of IC 101 less than 3V ?
No
· IC 101 is defective.
Yes
· Check the circuit around Q 101 and the wire connectors from CN101.
· Q 101 is defective.
· Pick-up is defective.

[Repair Item (C 2)] The lense of the pick-up does not move up and down.


C 2
Does +11V appear at collector of Q 102?
No
· Check the DC +11V lines.
· IC protector (IP101) is open.
Yes
Does −11V appear at collector of Q 103?
No
· Check the DC −11V lines.
· IC protector (IP102) is open.
Yes
Is waveform at TP102 as Fig. 6 ?
No
Yes
Is waveform at pin 11 (FEO) of IC 102 as Fig. 7 ?
No
Yes
Does 88.2 kHz clockpulse appear at pin 46 (WDCK) of IC 102?
No
Yes
· Check wire connector from CN102
· Pick-up is defective.
· Check the circuit around IC 102, Q 102 and Q 103.
· Q 102 and Q 103 are defective.
· Check the circuit around IC 105, soldering etc.
· IC 102 and IC 105 is defective.
· Check the circuit around X 101, IC 103.
· IC 103 is defective.

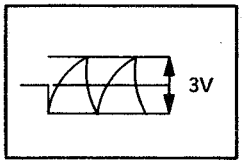



Fig. 6

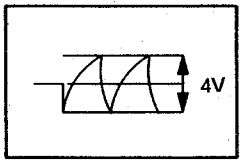



Fig. 7

## [Repair Item (D)] RF wave form is wrong.

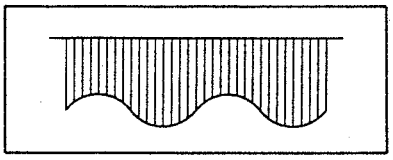


Fig. 8

(D)

Press the keys;
" STOP "→" CDR "→" REPEAT →" A–B " again.
Then check the followings.

Is RF level more than 0.8Vp–p ?

No → · Check the circuit around pin 1 and pin 2 of IC 101.
· Check the laser drive circuit.
· Readjust VR103 (Focus-bias) .
· Pick-up is defective.

Yes

Is waveform at TP101 of IC 101 as Fig. 8 ?

No → (back to RF level)

Yes

Is " TIME " indication of FL displayed ?

No → · Press the " TIME " key to display " TIME " indication.

Yes

Is waveform at TP103 (TE) as Fig. 9 ?

No → · Check the wire connector from CN103.
· IC 101 is defective.

Yes

Is waveform at pin 3 (TE) of IC 102 as Fig. 10 ?

No → · Check the circuit of " TE " lines.
· Tracking gain is too low. Readjust.

Yes

Is waveform at pin 17 (TAO) of IC 102 as Fig. 11 ?

No

Is pin 2 (DEFECT) of IC 102 " H " status ?

No → · IC 102 is defective.

Yes → · Check the circuit around IC 101.
· IC 101 is defective.

Yes

Is waveform at TP105 (TRD) as Fig. 12 ?

No → · Check Q 104, Q 105 and circuit around them.

Yes

· Check the wire connector from CN102 and PCB of pick-up unit.
· Tracking offset adjustment is not good.
· Pick-up is defective.

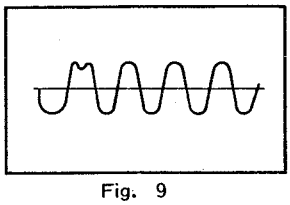


Fig. 9

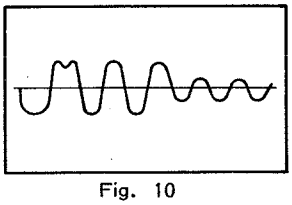


Fig. 10

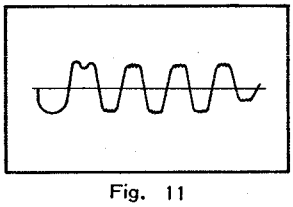


Fig. 11

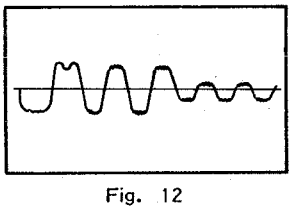


Fig. 12

[Repair Item (E)] Sub code data can not be read and displayed.

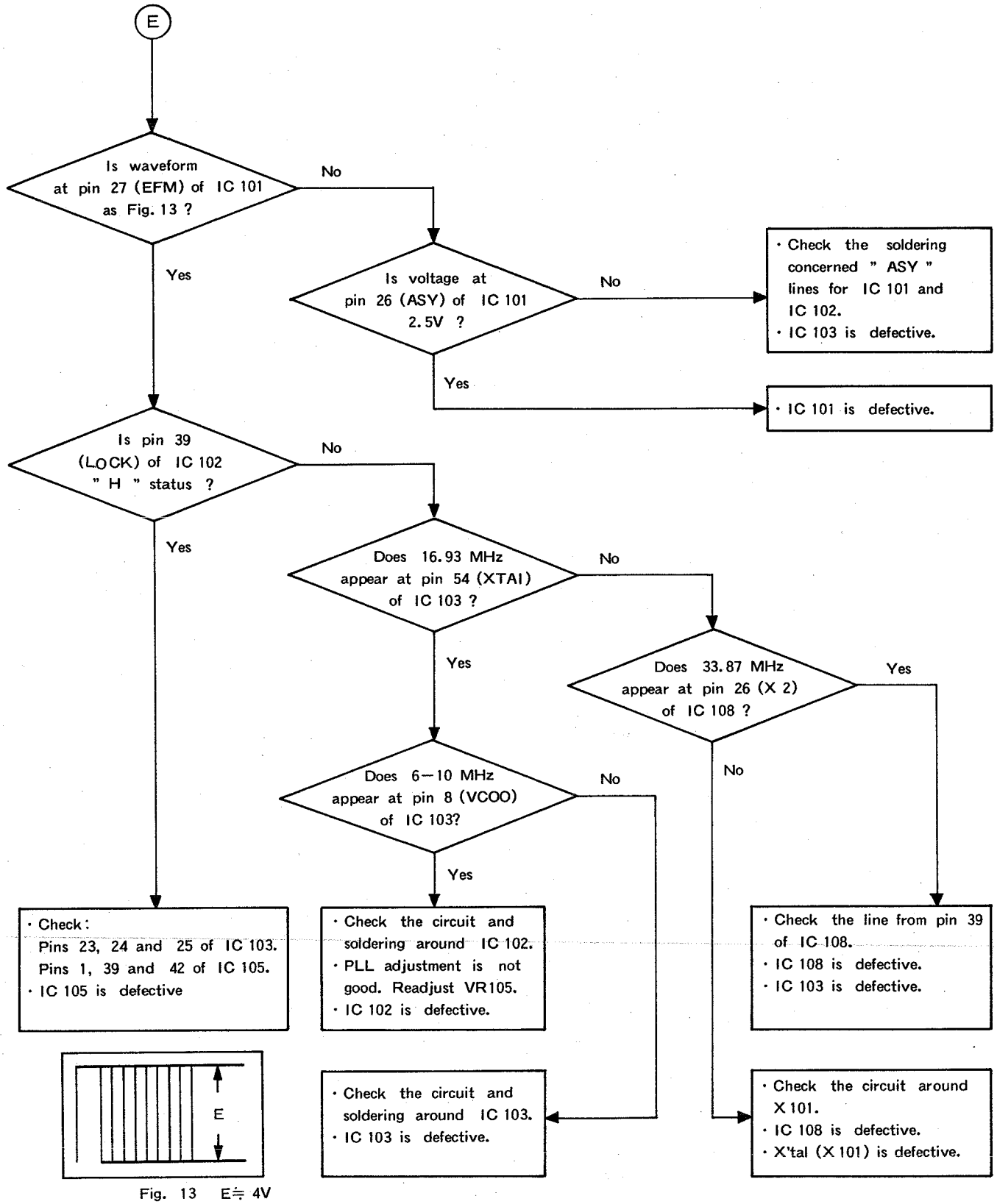
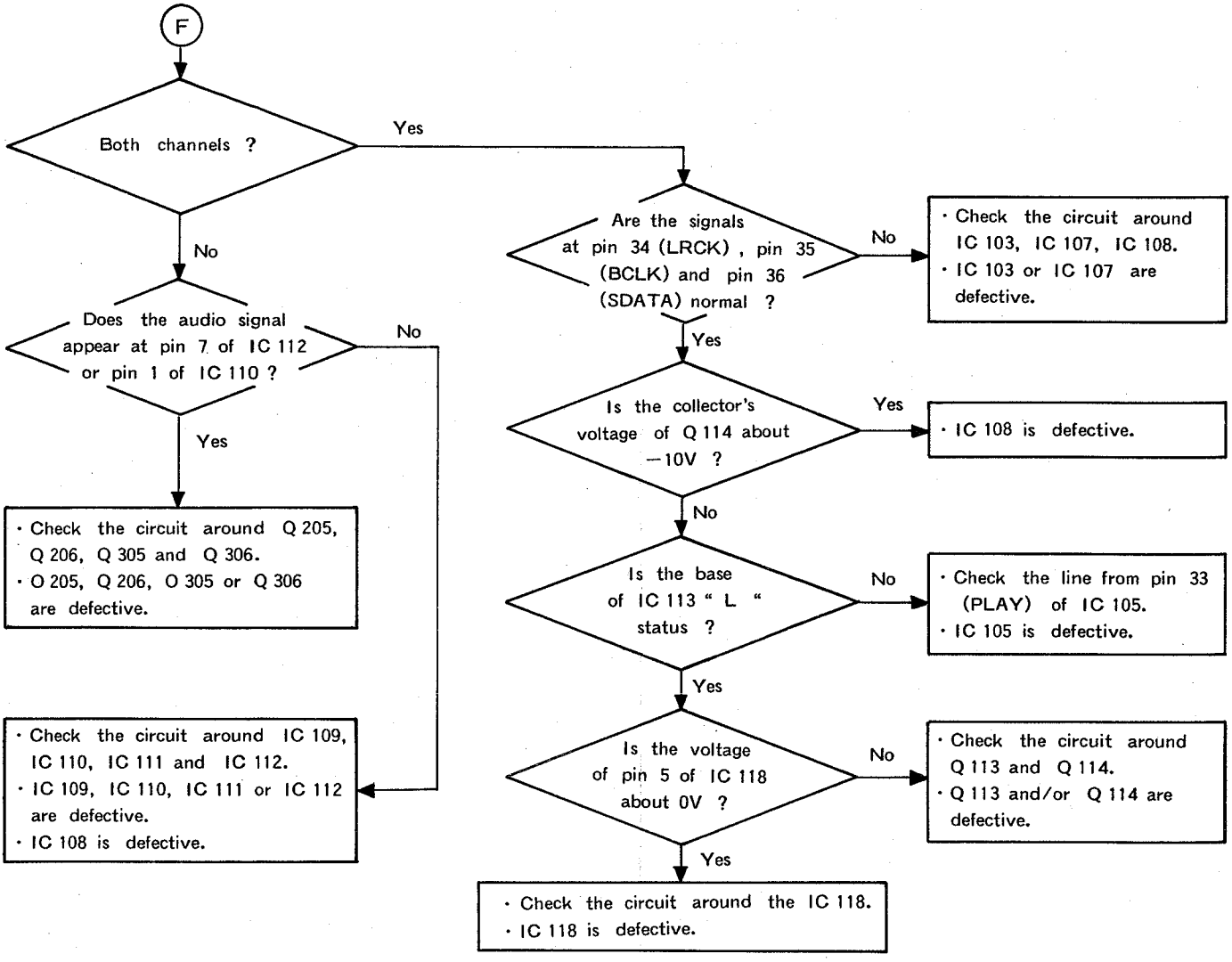

E
Is waveform at pin 27 (EFM) of IC 101 as Fig. 13 ?
No
Yes
Is voltage at pin 26 (ASY) of IC 101 2.5V ?
No
Yes
· Check the soldering concerned " ASY " lines for IC 101 and IC 102.
· IC 103 is defective.
· IC 101 is defective.
Is pin 39 (LOCK) of IC 102 " H " status ?
No
Yes
Does 16.93 MHz appear at pin 54 (XTAI) of IC 103 ?
No
Yes
Does 33.87 MHz appear at pin 26 (X 2) of IC 108 ?
Yes
No
Does 6—10 MHz appear at pin 8 (VCOO) of IC 103?
No
Yes
· Check:
Pins 23, 24 and 25 of IC 103.
Pins 1, 39 and 42 of IC 105.
· IC 105 is defective
· Check the circuit and soldering around IC 102.
· PLL adjustment is not good. Readjust VR105.
· IC 102 is defective.
· Check the line from pin 39 of IC 108.
· IC 108 is defective.
· IC 103 is defective.
E
· Check the circuit and soldering around IC 103.
· IC 103 is defective.
· Check the circuit around X 101.
· IC 108 is defective.
· X'tal (X 101) is defective.

Fig. 13 E≒ 4V

## [Repair Item (F)] The audio signal does not appear at the output terminals.


F
Both channels ?
Yes
No
Are the signals at pin 34 (LRCK), pin 35 (BCLK) and pin 36 (SDATA) normal ?
No
· Check the circuit around IC 103, IC 107, IC 108.
· IC 103 or IC 107 are defective.
Yes
Is the collector's voltage of Q 114 about −10V ?
Yes
· IC 108 is defective.
No
Is the base of IC 113 " L " status ?
No
· Check the line from pin 33 (PLAY) of IC 105.
· IC 105 is defective.
Yes
Is the voltage of pin 5 of IC 118 about 0V ?
No
· Check the circuit around Q 113 and Q 114.
· Q 113 and/or Q 114 are defective.
Yes
· Check the circuit around the IC 118.
· IC 118 is defective.
Does the audio signal appear at pin 7 of IC 112 or pin 1 of IC 110 ?
No
Yes
· Check the circuit around Q 205, Q 206, Q 305 and Q 306.
· O 205, Q 206, O 305 or Q 306 are defective.
· Check the circuit around IC 109, IC 110, IC 111 and IC 112.
· IC 109, IC 110, IC 111 or IC 112 are defective.
· IC 108 is defective.

## [Repair Item (G)] The tracks can not be sent smoothly.

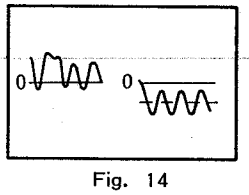



Fig. 14

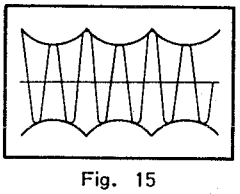
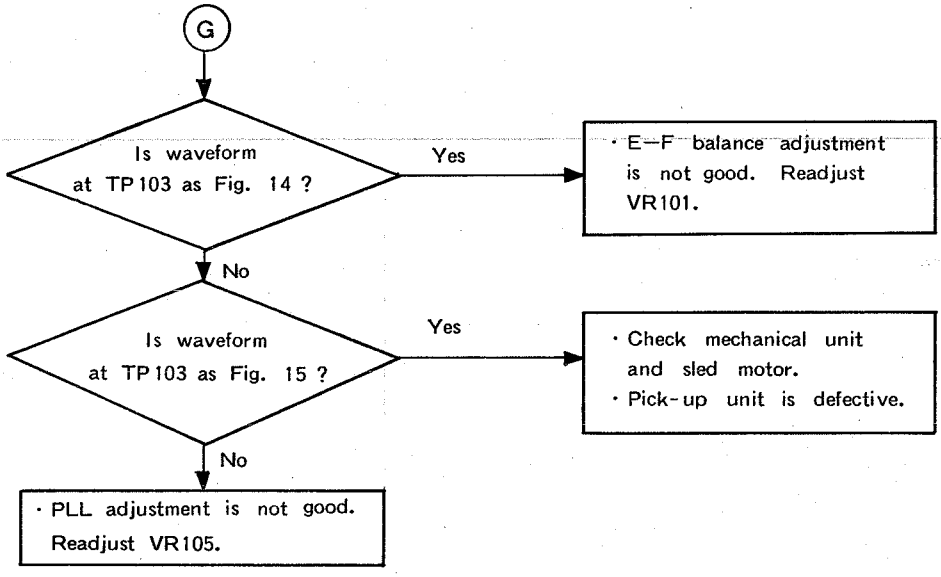
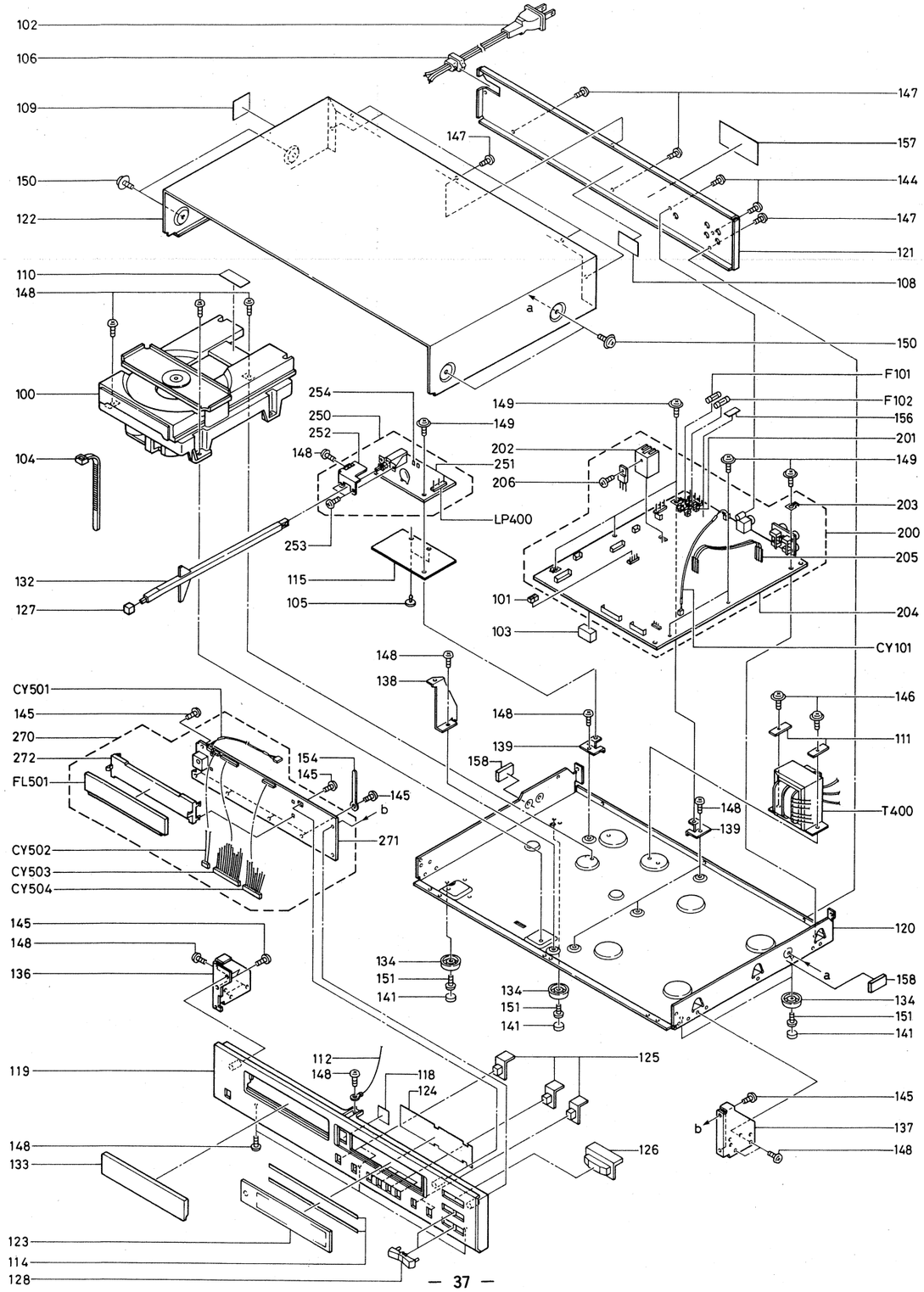


Fig. 15


G
Is waveform at TP 103 as Fig. 14 ?
Yes
· E−F balance adjustment is not good. Readjust VR101.
No
Is waveform at TP 103 as Fig. 15 ?
Yes
· Check mechanical unit and sled motor.
· Pick-up unit is defective.
No
· PLL adjustment is not good. Readjust VR105.

## Main Unit



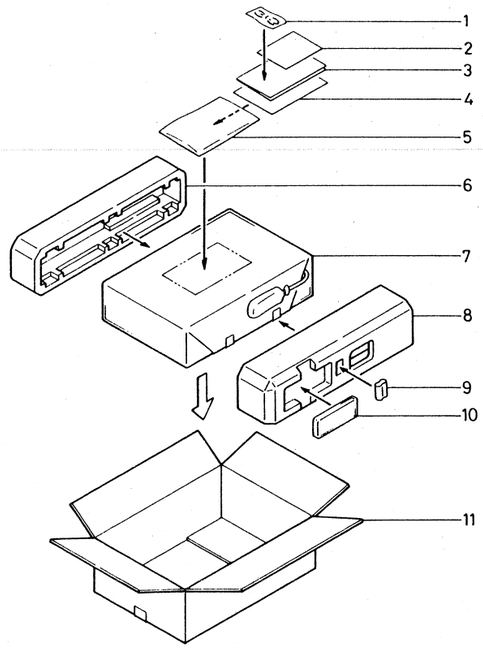



## Parts List

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| 100 | 1493−050−0−01 | CD Mechanism Unit | (1) |
| 101 | 0034−915−0−00 | Short Ring | 2 |
| ⚠ 102 | 0047−159−0−00 | AC Cord A, A 1 | 1 |
| or | 0047−159−0−30 | | |
| | 0047−296−0−00 | AC Cord B | 1 |
| | 0047−284−0−00 | AC Cord B 1 | 1 |
| | 0047−231−1−20 | AC Cord C, C 1 | 1 |
| or | 0047−231−1−21 | | |
| 103 | 0062−308−0−00 | Rubber Cushion | 2 |
| 104 | 0064−631−0−00 | Bar Lock Cable Tie | 5 |
| 105 | 0064−648−0−00 | Plastic Rivet | 2 |
| 106 | 0064−665−0−00 | Cord Bushing | 1 |
| 107 | 0065−370−0−00 | Mount Plate J | 1 |
| 108 | 0074−094−0−11 | Fuse Caution Label (1A) A, A 1 | 1 |
| 109 | 0074−129−0−00 | Caution Label A | 1 |
| 110 | 0074−160−0−00 | Warning Label | 1 |
| 111 | 0797−866−0−00 | Trans Supporter | 2 |
| 112, 113 | See Page 30 | | |
| 114 | 1465−832−0−00 | Remote Control Filter | 1 |
| 115 | 1493−355−0−00 | Insulation Sheet | 1 |
| 116~118 | See Page 30 | | |
| 119 | 1494−811−0−01 | Front Panel | 1 |
| 120 | 1493−815−0−00 | Bottom Case | 1 |
| 121 | 1493−816−0−05 | Rear Panel A | 1 |
| | 1493−816−0−06 | Rear Panel A 1 | 1 |
| | 1493−816−0−07 | Rear Panel B, B 1, C, C 1 | 1 |
| 122 | 1494−819−0−01 | Metal Case | 1 |
| 123 | 1494−832−0−01 | Display Window Set | 1 |
| 124 | 1493−831−0−01 | FL Filter | 1 |
| 125 | 1494−860−0−01 | Function Knob | 8 |
| 126 | 1494−861−0−01 | Play/Pause Knob | 1 |
| 127 | 1402−865−0−01 | Push Knob, Power | 1 |
| 128 | 1494−862−0−01 | Skip Kob | 2 |
| 129 | Not used. | | |
| 130 | Not used. | | |
| 131 | Not used. | | |
| 132 | 1493−867−0−00 | Power Switch Joint | 1 |
| 133 | 1494−869−0−01 | Tray Panel | 1 |
| 134 | 1493−870−0−01 | Foot | 4 |
| 135 | Not used. | | |
| 136 | 1494−871−0−00 | Support Ungle L | 1 |
| 137 | 1493−873−0−00 | Support Ungle R | 1 |
| 138 | 1493−875−0−00 | Panel Holder | 1 |
| 139 | 1493−876−0−00 | PCB Angle | 4 |
| 140 | Not used. | | |
| 141 | 1493−883−0−00 | Rubber Foot | 4 |
| 142 | 0972−720−0−65 | ST Screw, B 2 x 6−SK | 1 |
| 143 | Not used. | | |
| 144 | 0973−230−0−83 | BT Screw, B 3 x 8−SBK | 2 |
| 145 | 0973−230−0−85 | BT Screw, B 3 x 8−SK | 10 |
| 146 | 0974−540−0−85 | PW Screw, DT4 x 8−SK | 2 |
| 147 | 0975−030−0−63 | CT Screw, B 3 x 6−SBK | 8 |
| 148 | 0975−030−0−65 | CT Screw, B 3 x 6−SK | 17 |
| 149 | 0975−130−0−65 | ST Screw, PF 3 x 6−SK | 7 |
| 150 | 0975−130−0−63 | ST Screw, PF 3 x 6−SBK | 4 |
| 151 | 0977−630−0−65 | TT Screw, L 3 x 6−SK | 4 |
| 152 | 0973−230−0−65 | BT Screw, B 3 x 6−SK | 1 |
| 153 | Not used. | | |
| 154 | 0065−319−0−00 | Lead Wire Clamper | 2 |
| 155 | 0062−967−0−00 | Himeron | 2 |
| 156 | 0074−005−1−45 | Fuse Label B, B 1, C, C 1 | 2 |
| 157 | 1493−859−0−00 | Data Cord Label A | 1 |
| | 0074−056−0−00 | CSA Label A 1 | 1 |
| | 0074−154−0−00 | Warning Label B, B 1, C, C 1 | 1 |
| 158 | 0062−548−0−00 | Rubber Cushion | 2 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| 200 | 1494−001−0−00 | Main PCB Unit | 1 |
| 201 | 0045−501−0−00 | Fuse Holder | 4 |
| or | 0045−507−0−00 | | |
| 202 | 0049−038−0−00 | Heat Sink, OSH−1625−SPL | 1 |
| 203 | 0061−263−0−00 | Earth Plate | 5 |
| 204 | 1493−500−0−00 | Main PCB | 1 |
| 205 | 1493−539−0−00 | Flat Cable 3 P | 1 |
| 206 | 0973−230−0−65 | BT Screw, B 3 x 6−SK | 1 |
| 250 | 1493−010−0−00 | Power Supply PCB Unit, A, A 1 | 1 |
| | 1493−011−0−00 | Power Supply PCB Unit, B, B 1, C, C 1 | 1 |
| 251 | 1493−510−0−00 | PS PCB | 1 |
| 252 | 1493−874−0−00 | Power Switch Holder | 1 |
| 253 | 0975−030−0−65 | CT Screw, B 3 x 6−SK | 2 |
| 254 | 0034−326−0−00 | Pin Terminal, B, B 1, C, C 1 | 2 |
| 270 | 1493−020−0−00 | Display Switch PCB Unit | 1 |
| 271 | 1493−505−0−91 | Display Switch PCB | 1 |
| 272 | 1493−868−0−00 | FL Holder | 1 |

## PACKINGDIAGRAM




| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| 1 | 0047−311−0−01 | Pin Cord | 1 |
| 2 | 1402−921−0−03 | Guarantee Card A | 1 |
| 3 | 1494−920−0−02 | Instruction | 1 |
| 4 | 0074−163−0−00 | Safety Instruction A, A1 | 1 |
| 5 | 0998−000−8−00 | Poly Bag, PB− 24 x 28 | 1 |
| 6 | 1493−900−0−00 | Styrofoam Front | 1 |
| 7 | 1493−915−0−00 | Mirror Mat | 1 |
| 8 | 1493−901−0−00 | Styrofoam Rear | 1 |
| 9 | 0074−163−0−00 | Battery, " UM−4 "," R− 3 " (x 2) | 1 |
| 10 | 0088−010−0−01 | Remote Controller (Serial No. 54400001〜54404000) | 1 |
| | 0088−011−0−01 | Remote Controller (Serial No. 54404001〜) | 1 |
| 11 | 1494−910−0−02 | Gift Box | 1 |



## Electorical Parts List

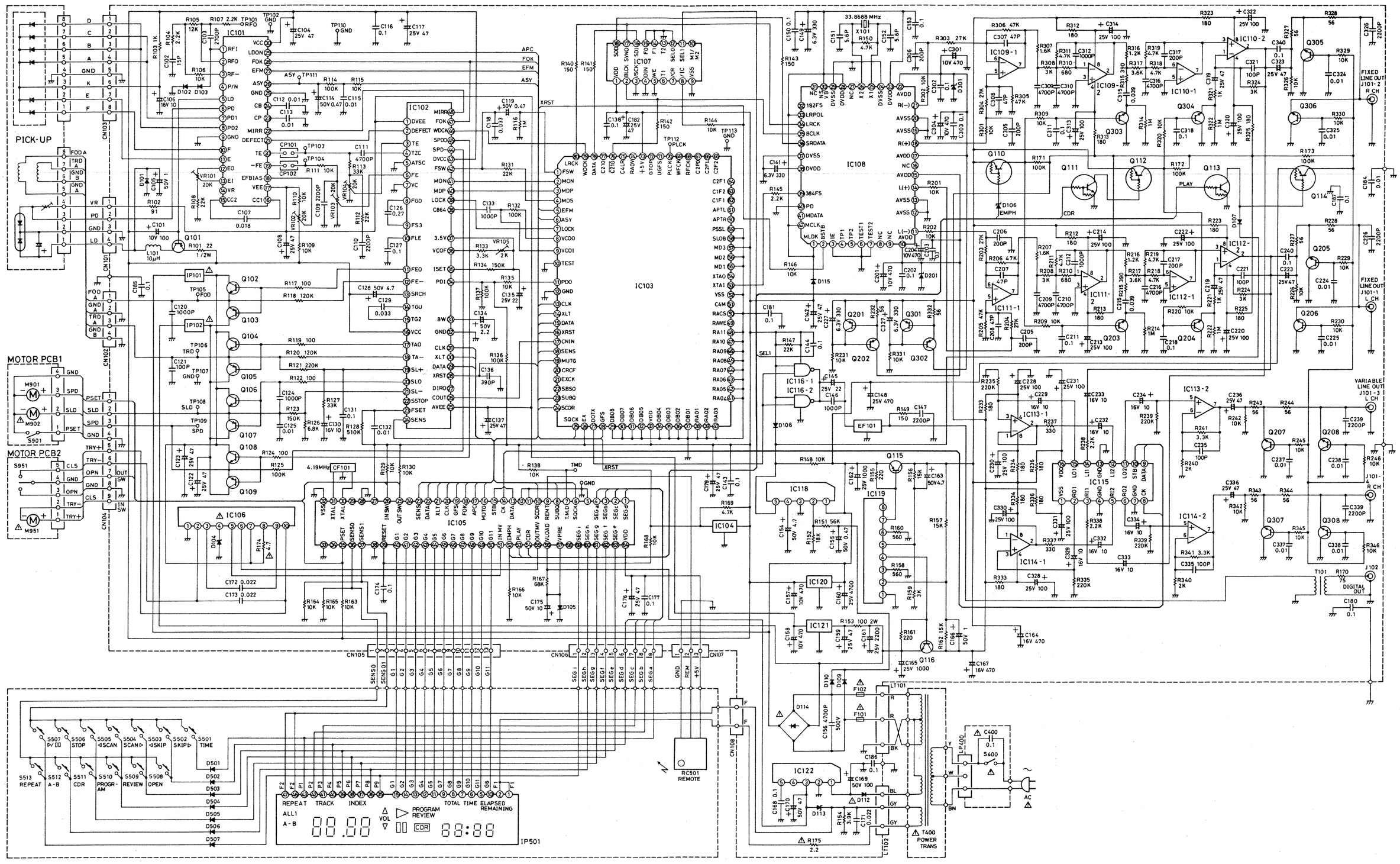
| Ref. No. | Part No. | Description |
|---|---|---|
| **Diodes** | | |
| D 101〜103 | 0915−003−3−00 | 1SS 176 |
| | or 0915−003−6−00 | 1SS 270 |
| | or 0915−003−9−00 | 1SS 133 |
| D 104 | 0915−010−0−02 | RD6.8ESB2 |
| D 105 | 0915−009−8−02 | RD4.7ESB2 |
| D 106 | 0915−010−1−02 | RD7.5ESB2 |
| D 107 | 0915−003−3−00 | 1SS 176 |
| | or 0915−003−6−00 | 1SS 270 |
| | or 0915−003−9−00 | 1SS 133 |
| D 108 | 0915−003−3−00 | 1SS 176 |
| | or 0915−003−6−00 | 1SS 270 |
| | or 0915−003−9−00 | 1SS 133 |
| D 109, 110 | 0915−005−2−00 | MPG 06B |
| | or 0915−005−4−00 | S 5688B |
| D 111 | Not used. | |
| D 112 | 0915−003−3−00 | 1SS 176 |
| | or 0915−003−6−00 | 1SS 270 |
| | or 0915−003−9−00 | 1SS 133 |
| D 113 | 0915−010−1−02 | RD7.5ESB2 |
| D 114 | 0913−011−0−00 | WO 2G |
| | or 0913−008−1−00 | WO 2M |
| D 115 | 0915−011−9−00 | RB100A |
| D 201 | 0915−009−9−01 | RD5.1ESB1 |
| D 301 | 0915−009−9−01 | RD5.1ESB1 |
| D 501〜507 | 0915−003−3−00 | 1SS 176 |
| | or 0915−003−6−00 | 1SS 270 |
| | or 0915−003−9−00 | 1SS 133 |
| **IC's** | | |
| IC 101 | 0911−081−2−00 | CXA 1081S |
| IC 102 | 0911−091−4−00 | CXA 1082BS |
| IC 103 | 0911−113−2−00 | CXD 1167Q |
| IC 104 | 0911−115−5−04 | PST520D |
| IC 105 | 0037−113−0−00 | UPD 75208CW−A 81, Microprocessor (Serial No. 54400001〜54404000) |
| | 0037−113−1−00 | UPD 75208CW−A 91, Microprocessor (Serial No. 54404001〜) |
| IC 106 | 0911−029−6−00 | BA6109 |
| IC 107 | 0911−126−8−00 | YM 3412B |
| IC 108 | 0911−126−7−00 | MN 6471M |
| IC 109〜112 | 0911−096−0−00 | NE5532N |
| IC 113, 114 | 0911−111−3−00 | NJM 2068D |
| IC 115 | 0911−126−6−00 | TC9176P |
| IC 116 | 0911−043−3−00 | TC74HC00AP |
| IC 117 | Not used. | |
| IC 118 | 0911−065−7−00 | M51957BL |
| IC 119 | 0911−109−5−00 | M5230L |
| IC 120 | 0911−020−1−00 | UPC 78M05H |
| IC 121 | 0911−086−2−00 | UPC 79M05H |
| IC 122 | 0911−106−9−00 | M5293L |
| **Transistors** | | |
| Q 101 | 0906−220−9−18 | 2SB1237R−TV6 |
| Q 102 | 0906−221−0−18 | 2SD1858R−TV6 |
| Q 103 | 0906−220−9−18 | 2SB1237R−TV6 |
| Q 104 | 0906−221−0−18 | 2SD1858R−TV6 |
| Q 105 | 0906−220−9−18 | 2SB1237R−TV6 |
| Q 106 | 0906−221−0−18 | 2SD1858R−TV6 |
| Q 107 | 0906−220−9−18 | 2SB1237R−TV6 |
| Q 108 | 0906−221−0−18 | 2SD1858R−TV6 |
| Q 109 | 0906−220−9−18 | 2SB1237R−TV6 |
| Q 110 | 0906−208−7−00 | DTA 114ES |
| | or 0906−208−3−00 | BN1A 4M |

| Ref. No. | Part No. | Description |
|---|---|---|
| Q 111 | 0906−206−2−05 | DTC 114ESTP |
| | or 0906−208−4−00 | BA1A 4M |
| Q 112 | 0906−208−7−00 | DTA 114ES |
| | or 0906−208−3−00 | BN1A 4M |
| Q 113 | 0906−206−2−05 | DTC 114ESTP |
| | or 0906−208−4−00 | BA1A 4M |
| Q 114 | 0906−208−7−00 | DTA 114ES |
| | or 0906−208−3−00 | BN1A 4M |
| Q 115 | 0901−002−9−06 | 2SB1185−F |
| Q 116 | 0903−005−0−06 | 2SD1762−F |
| Q 201, 202 | 0906−200−2−55 | 2SA1015−GR |
| Q 203〜208 | 0906−203−5−02 | 2SC2878−B |
| Q 301, 302 | 0906−200−2−55 | 2SA1015−GR |
| Q 303〜308 | 0906−203−5−02 | 2SC2878−B |
| **Jacks** | | |
| J101 | 0033−246−0−00 | Pin, 4P, YKC 21−0482, Line Out |
| J102 | 0033−247−0−00 | Pin, 1P, YKC 21−3117, Digital Out |
| **Filters** | | |
| CF 101 | 0038−938−0−00 | Ceramic Resonator, 4.19 MHz |
| | or 0038−918−0−00 | |
| EF 101 | 0011−600−2−71 | EMI Filter, DST310−55B 271M |
| **FLD Panel** | | |
| FL 501 | 0040−601−0−00 | FLD Panel, FV467G |
| **Indicator** | | |
| L 101 | 0991−401−0−05 | LHL06TB100K, 10uH |
| | or 0991−902−1−00 | EL0606RA100KP, 10uH |
| **Transformers** | | |
| T 101 | 0015−901−0−00 | Digital Audio Output |
| ⚠ T 400 | 0019−897−0−00 | Power |
| **Variable Resistors** | | |
| VR101〜104 | 0031−835−2−03 | SF Volume, 20k |
| | or 0031−837−2−03 | |
| VR105 | 0031−835−2−02 | SF Volume, 2k |
| | or 0031−837−2−02 | |
| **Crystal** | | |
| X 101 | 0038−098−0−00 | Crystal, 33.8688 MHz |
| **Switches** | | |
| ⚠ S 400 | 0036−299−0−00 | Push Switch, Power |
| S 501〜513 | 0028−840−0−00 | Tact Switch |
| | or 0028−813−0−00 | |
| S 901 | 0028−505−0−00 | Leaf Switch, Preset |
| S 951 | 1465−590−0−00 | Leaf Switch, Tray Open/Close |
| **Remote Receiver** | | |
| RC501 | 0039−620−0−00 | Remote Receiver, SBX1610−52 |

## SCHEMATIC DIAGRAM

Make leakage current or resistance measurements to determine that exposed metal parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

Leakage current should not exceed 0.5 mA as measured through a 1.5 Kohm resistor paralleled by a 0.15 mfd capacitor to the earth ground.



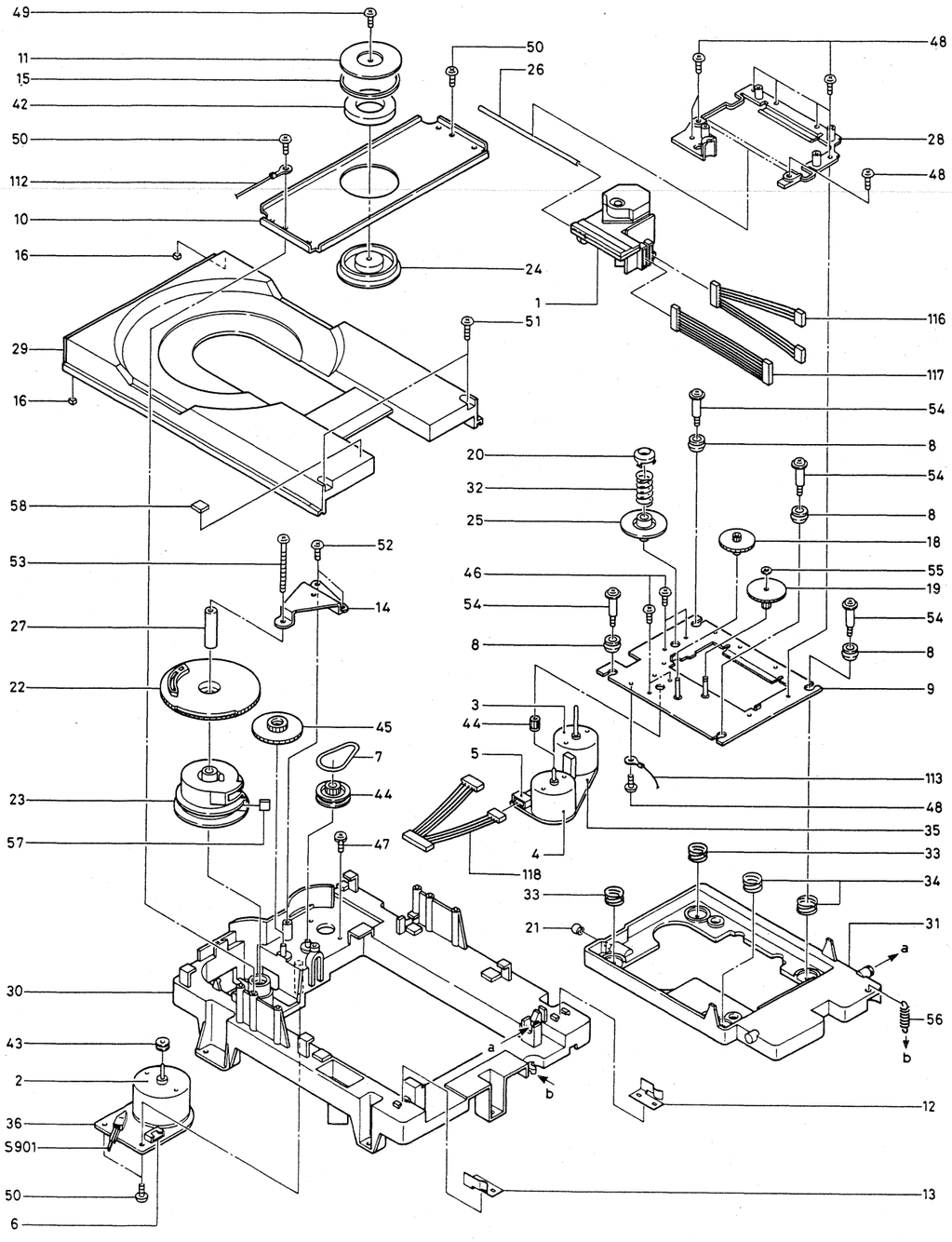





© NAD Electronics Ltd. 1991

# EXPLODED VIEW AND PARTS LIST

## CD Player Mechanism

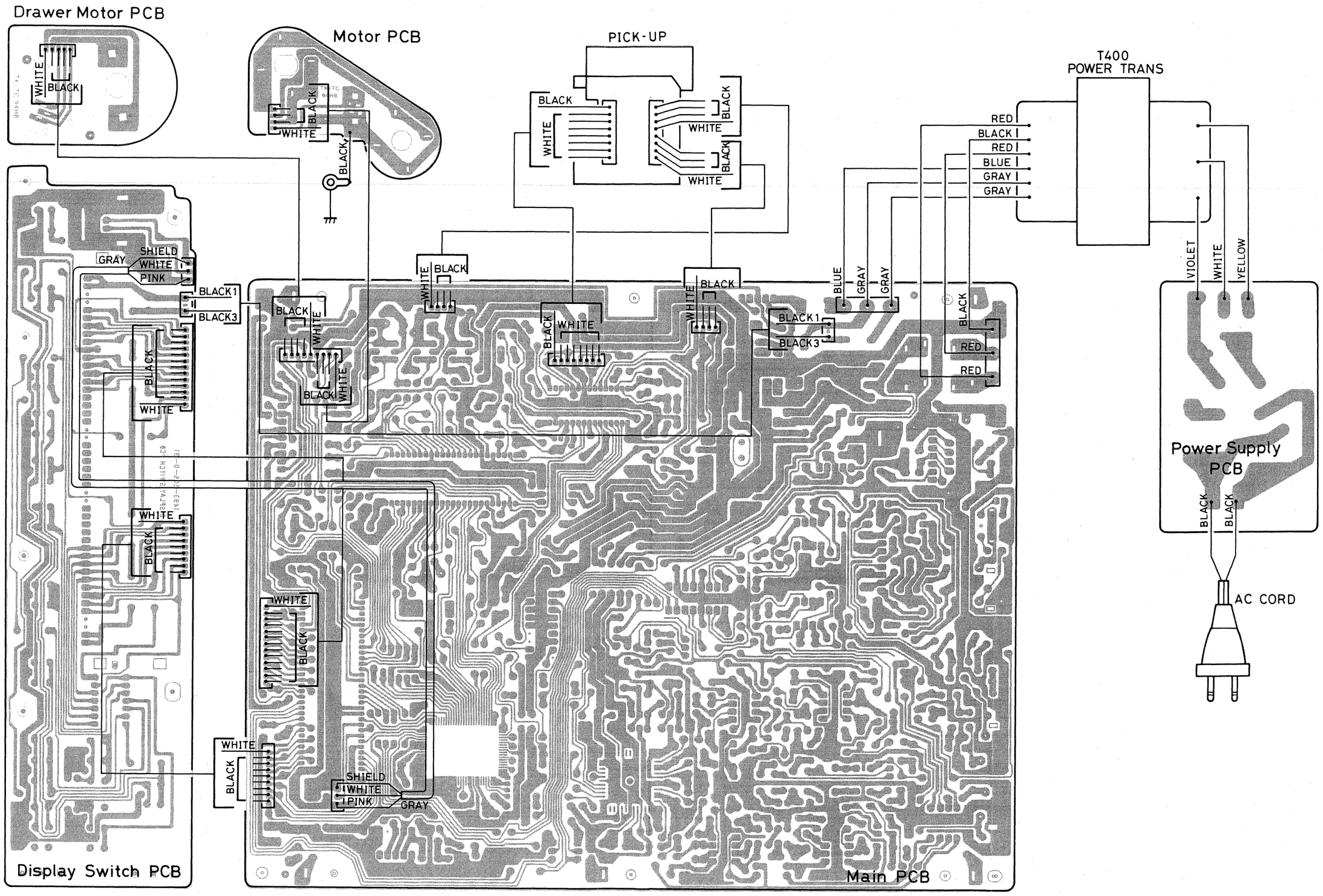





## Parts List

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| ⚠ 1 | 0020−008−0−00 | Laser Pick−up, D− 77−LMI (Serial No. 54400001〜54404000) | 1 |
| | 0020−006−0−00 | Laser Pick−up, KSS− 210A (Serial No. 54404001〜) | 1 |
| ⚠ 2 | 0022−066−0−00 | Motor, RF− 500TB− 12560 32MM | 1 |
| ⚠ 3 | 0022−072−0−00 | Motor, MDN− 4RA3NTAS | 1 |
| ⚠ 4 | 0022−322−0−00 | Motor, RF− 310TA− 11400 30MM | 1 |
| 5 | 0034−786−0−04 | Connector Pin, 4 P | 1 |
| 6 | 0034−786−0−05 | Connector Pin, 5 P | 1 |
| 7 | 0056−197−0−00 | Belt | 1 |
| 8 | 0062−304−0−00 | Rubber Bushing | 4 |
| 9 | 1465−100−1−00 | Mechanism Chassis Set | 1 |
| 10 | 1465−160−2−00 | Clamp Base | 1 |
| 11 | 1465−161−1−00 | Clamp Plate | 1 |
| 12 | 1465−162−0−00 | T Holder L | 1 |
| 13 | 1465−163−0−00 | T Holder R | 1 |
| 14 | 1465−166−0−00 | Gear Supporter | 1 |
| 15 | 1465−170−1−00 | Clamp Cushion | 1 |
| 16 | 1465−171−0−00 | Cushion | 2 |
| 17 | 1465−200−0−00 | Motor Gear | 1 |
| 18 | 1465−201−0−00 | Gear A | 1 |
| 19 | 1465−202−0−00 | Gear B | 1 |
| 20 | 1465−204−0−00 | Disc Guide | 1 |
| 21 | 1465−205−0−00 | Slide Pulley | 1 |
| 22 | 1465−206−0−00 | Loading Gear | 1 |
| 23 | 1465−207−0−00 | Control Cum | 1 |
| 24 | 1465−208−0−00 | Clamper | 1 |
| 25 | 1465−209−0−01 | Turn Table Set | 1 |
| 26 | 1465−221−0−00 | Shaft | 1 |
| 27 | 1465−224−1−00 | Cum Shaft | 1 |
| 28 | 1465−250−1−00 | Slide Base | 1 |
| 29 | 1465−252−1−01 | Tray | 1 |
| 30 | 1465−253−1−00 | Main Chassis | 1 |
| 31 | 1465−254−0−00 | Sub Chassis Set | 1 |
| 32 | 1465−400−0−00 | Com Spring | 1 |
| 33 | 1465−401−0−00 | Com Spring | 2 |
| 34 | 1465−402−0−00 | Com Spring | 2 |
| 35 | 1465−515−1−00 | Motor PCB M | 1 |
| 36 | 1465−520−0−00 | Motor PCB R | 1 |
| 37〜41 | Not used. | | |
| 42 | 1471−280−0−00 | Magnet Ring | 1 |
| 43 | 1480−200−0−00 | Motor Pulley | 1 |
| 44 | 1480−201−0−00 | Gear Pulley A | 1 |
| 45 | 1480−202−0−00 | Gear A | 1 |
| 46 | 0971−020−0−31 | Screw, P 2 x 3−SN | 4 |
| 47 | 0971−826−0−51 | Screw, P 2.6 x 5−SN−S | 2 |
| 48 | 0972−720−0−65 | ST Screw, B 2 x 6−SK | 7 |
| 49 | 0973−520−0−45 | PT Screw, B 2 x 4−SK | 1 |
| 50 | 0973−526−0−85 | PT Screw, B 2.6 x 8−SK | 4 |
| 51 | 0973−562−1−23 | PT Screw, B 2.6 x 12−SBK | 2 |
| 52 | 0973−530−0−83 | PT Screw, B 3 x 8−SBK | 2 |
| 53 | 0972−930−3−53 | PT Screw, P 3 x 3.5−SBK | 1 |
| 54 | 0979−908−7−00 | Special Screw | 4 |
| 55 | 0986−400−7−00 | Washer, WPC 1.7 x 4.0 x 0.25 | 1 |
| 56 | 1465−410−0−00 | Ext Spring | 1 |
| 57 | 0062−311−0−00 | Cushion | 1 |
| 58 | 0062−585−0−00 | Mat | 1 |
| 112 | 1465−537−0−00 | Terminal Wire | 1 |
| 113 | 1465−538−0−00 | Terminal Wire | 1 |
| 116 | 1493−530−0−00 | Wire Connector 8 Pin | 1 |
| 117 | 1493−531−0−00 | Wire Connector 8 Pin | 1 |
| 118 | 1465−532−0−00 | Wire Connector 9 Pin | 1 |

## WIRING DIAGRAM

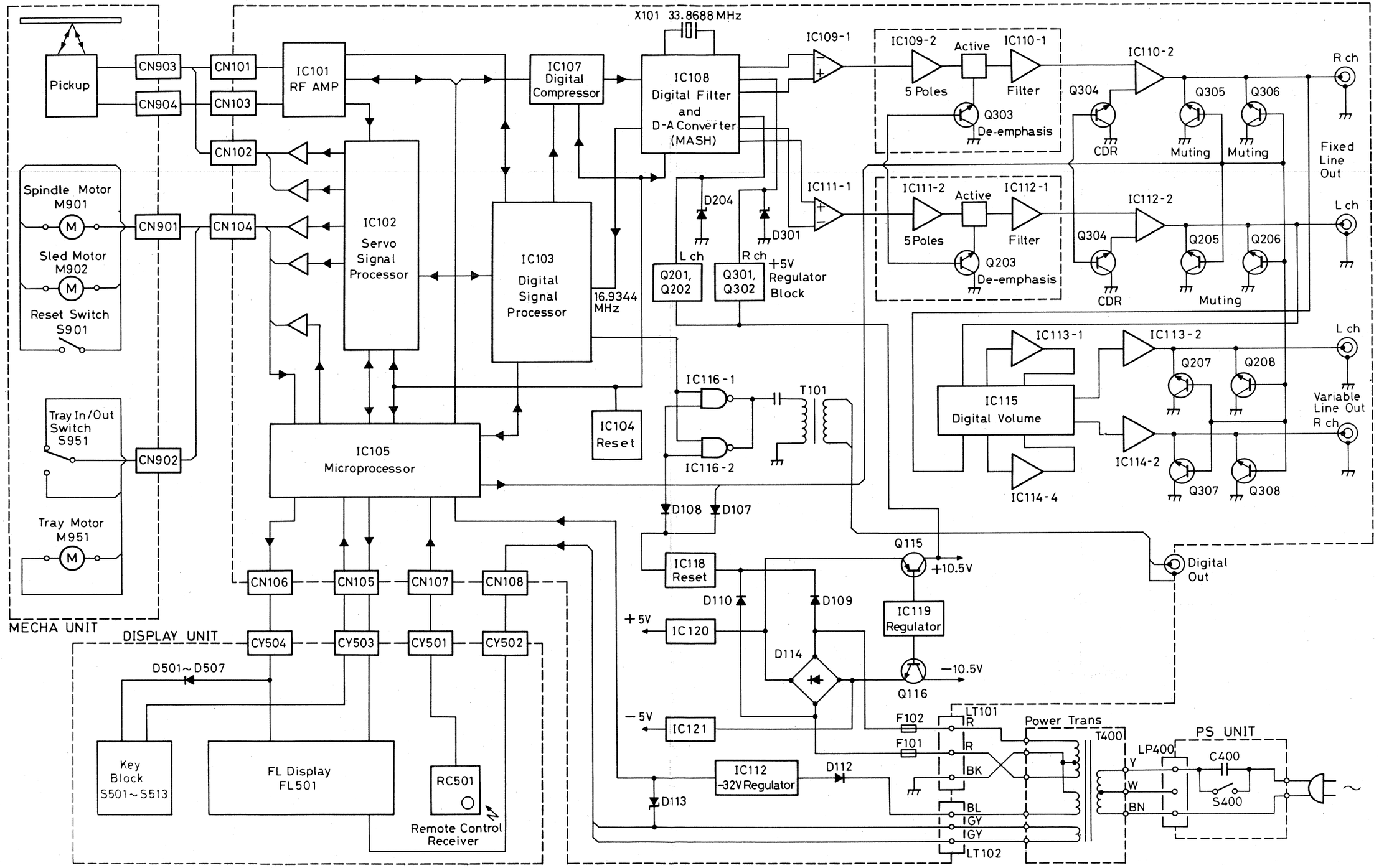






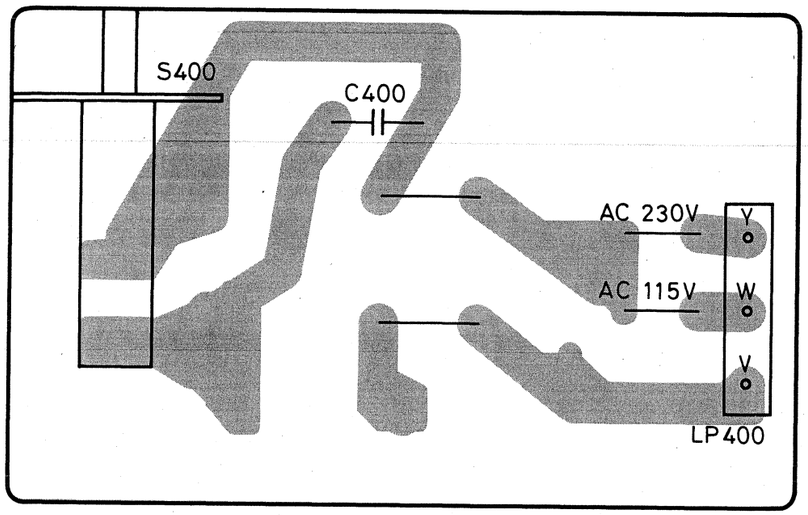

© NAD Electronics Ltd. 1991

## BLOCK DIAGRAM

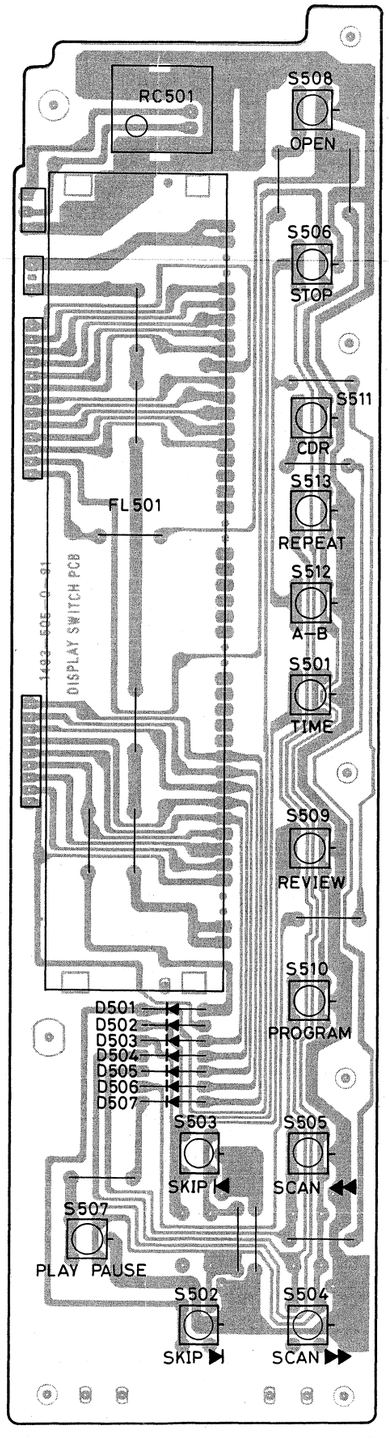


## PCB LAYOUT

### Power Supply PCB




### Display PCB

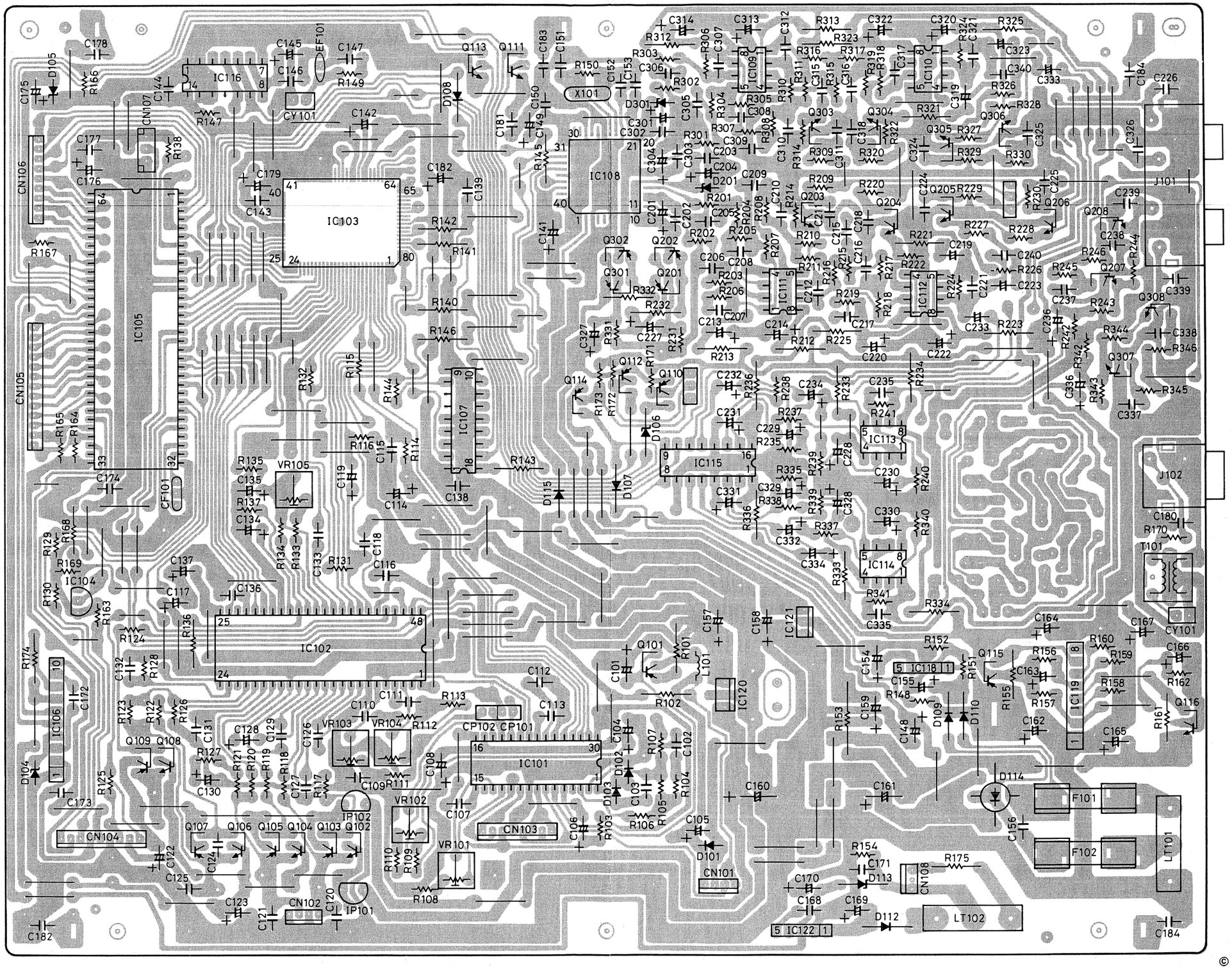







© NAD Electronics Ltd. 1991

Main PCB








© NAD Electronics Ltd. 1991

| Ref. No. | Part No. | Description |
|---|---|---|
| | Fuses | |
| ⚠ F 101 | 0045−047−0−00 | 1A, 250V A, A 1 |
| | or 0045−047−0−41 | |
| | 0045−002−1−40 | T. 500mA, 250V B, B 1, C, C 1 |
| | or 0045−002−1−41 | |
| ⚠ F 102 | 0045−047−0−00 | 1A, 250V A, A 1 |
| | or 0045−047−0−41 | |
| | 0045−002−1−40 | T. 500mA, 250V B, B 1, C, C 1 |
| | or 0045−002−1−41 | |
| ⚠ IP 101 | 0045−800−0−00 | ICP−N10 |
| ⚠ IP 102 | 0045−800−0−00 | ICP−N10 |
| | Capacitors | |
| | | CC, CK, CG: Ceramic Capacitor |
| | | CF: Metallized Film Capacitor |
| | | EL: Electrolytic Capacitor |
| | | CQ: Plastic Film Capacitor |
| C 101 | 0937−811−0−16 | EL, 100 mfd, 10V, ±20% |
| C 102 | 9300−251−5−04 | CC, 15 pfd, 50V, ±5% |
| C 103 | 9336−752−7−24 | CQ, 2700 pfd, 50V, ±5% |
| C 104 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 105 | 0937−850−1−06 | EL, 1 mfd, 50V, ±50% |
| C 106 | 0937−821−0−06 | EL, 10 mfd, 16V, ±20% |
| C 107 | 9336−751−8−34 | CQ, 0.018 mfd, 50V, ±5% |
| C 108 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 109 | 9336−752−2−24 | CQ, 2200 pfd, 50V, ±5% |
| C 110 | 9336−752−2−24 | CQ, 2200 pfd, 50V, ±5% |
| C 111 | 9336−754−7−24 | CQ, 4700 pfd, 50V, ±5% |
| C 112 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 113 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 114 | 0937−854−7−96 | EL, 0.47 mfd, 50V, ±20% |
| C 115 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 116 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 117 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 118 | 9336−753−3−34 | CQ, 0.033 mfd, 50V, ±5% |
| C 119 | 0937−854−7−96 | EL, 0.47 mfd, 50V, ±20% |
| C 120 | 9301−451−0−25 | CK, 1000 pfd, 50V, ±10% |
| C 121 | 9301−451−0−15 | CK, 100 pfd, 50V, ±10% |
| C 122 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 123 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 124 | 9301−451−0−25 | CK, 1000 pfd, 50V, ±10% |
| C 125 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 126 | 0933−452−7−44 | CF, 0.27 mfd, 50V, ±5% |
| | | (Serial No. 54400001〜54404000) |
| | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |
| | | (Serial No. 54404001〜) |
| C 127 | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |
| C 128 | 0937−854−7−86 | EL, 4.7 mfd, 50V, ±20% |
| C 129 | 9336−758−2−34 | CQ, 0.082 mfd, 50V, ±5% |
| | | (Serial No. 54400001〜54404000) |
| | 9336−753−3−34 | CQ, 0.033 mfd, 50V, ±5% |
| | | (Serial No. 54404001〜) |
| C 130 | 0937−821−0−06 | EL, 10 mfd, 16V, ±20% |
| C 131 | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |
| C 132 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 133 | 9301−451−0−25 | CK, 1000 pfd, 50V, ±10% |
| C 134 | 0937−852−2−86 | EL, 2.2 mfd, 50V, ±20% |
| C 135 | 0937−832−2−06 | EL, 22 mfd, 25V, ±20% |
| C 136 | 9301−453−9−15 | CK, 390 pfd, 50V, ±10% |
| C 137 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 138 | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |
| C 139 | Not used. | |
| C 140 | Not used. | |
| C 141 | 0937−803−3−16 | EL, 330 mfd, 6.3V, ±20% |
| C 142 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 143 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 144 | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |

| Ref. No. | Part No. | Description |
|---|---|---|
| C 145 | 0937−832−2−06 | EL, 22 mfd, 25V, ±20% |
| C 146 | 9301−451−0−25 | CK, 1000 pfd, 50V, ±10% |
| C 147 | 9336−752−2−24 | CQ, 2200 pfd, 50V, ±5% |
| C 148 | 0937−734−7−16 | EL, 470 mfd, 25V, ±20% |
| C 149 | 0937−803−3−16 | EL, 330 mfd, 6.3V, ±20% |
| C 150 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 151 | 9300−255−6−85 | CC, 5.6 pfd, 50V, ±10% |
| C 152 | 9300−255−6−85 | CC, 5.6 pfd, 50V, ±10% |
| C 153 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 154 | 0937−854−7−86 | EL, 4.7 mfd, 50V, ±20% |
| C 155 | 0937−854−7−96 | EL, 0.47 mfd, 50V, ±20% |
| C 156 | 0930−794−7−28 | CK, 4700 pfd, 500V, +100%, −0% |
| C 157 | 0937−814−7−16 | EL, 470 mfd, 10V, ±20% |
| C 158 | 0937−814−7−16 | EL, 470 mfd, 10V, ±20% |
| C 159 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 160 | 0937−734−7−26 | EL, 4700mfd, 25V, ±20% |
| C 161 | 0937−732−2−26 | EL, 2200 mfd, 25V, ±20% |
| C 162 | 0937−731−0−26 | EL, 1000 mfd, 25V, ±20% |
| C 163 | 0937−854−7−86 | EL, 4.7 mfd 50V, ±20% |
| C 164 | 0937−824−7−16 | EL, 470 mfd, 16V, ±20% |
| C 165 | 0937−731−0−26 | EL, 1000 mfd, 25V, ±20% |
| C 166 | 0937−850−1−06 | EL, 1 mfd, 50V, ±20% |
| C 167 | 0937−824−7−16 | EL, 470 mfd, 16V, ±20% |
| C 168 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 169 | 0937−851−0−16 | EL, 100 mfd, 50V, ±20% |
| C 170 | 0937−854−7−06 | EL, 47 mfd, 50V, ±20% |
| C 171 | 9302−332−2−39 | CG, 0.022 mfd, 25V, +80%, −20% |
| C 172 | 9302−332−2−39 | CG, 0.022 mfd, 25V, +80%, −20% |
| C 173 | 9302−332−2−39 | CG, 0.022 mfd, 25V, +80%, −20% |
| C 174 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 175 | 0937−851−0−06 | EL, 10 mfd, 50V, ±20% |
| C 176 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 177 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 178 | Not used. | |
| C 179 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 180 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 181 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 182 | 0937−834−7−06 | EL, 47 mfd, 25V, ±20% |
| C 183 | Not used. | |
| C 184 | 9336−751−0−34 | CQ, 0.01 mfd, 50V, ±5% |
| C 185 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 186 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 187 | 0932−851−0−44 | CQ, 0.1 mfd, 50V, ±5% |
| C 201 | 0937−814−7−16 | EL, 470 mfd, 10V, ±20% |
| C 202 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 203 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 204 | 0937−814−7−16 | EL, 470 mfd, 10V, ±20% |
| C 205 | 9330−672−0−14 | CQ, 200 pfd, 100V, ±5% |
| C 206 | 9330−672−0−14 | CQ, 200 pfd, 100V, ±5% |
| C 207 | 9301−154−7−04 | CC, 47 pfd, 50V, ±5% |
| C 208 | 9301−154−7−04 | CC, 47 pfd, 50V, ±5% |
| C 209 | 9330−674−7−24 | CQ, 4700 pfd, 100V, ±5% |
| C 210 | 9330−674−7−24 | CQ, 4700 pfd, 100V, ±5% |
| C 211 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 212 | 9330−671−0−24 | CQ, 1000 pfd, 100V, ±5% |
| C 213 | 0937−831−0−16 | EL, 100 mfd, 25V, ±20% |
| C 214 | 0937−831−0−16 | EL, 100 mfd, 25V, ±20% |
| C 215 | 9336−753−9−34 | CQ, 0.039 mfd, 50V, ±5% |
| C 216 | 9330−674−7−24 | CQ, 4700 pfd, 100V, ±5% |
| C 217 | 9330−672−0−14 | CQ, 200 pfd, 100V, ±5% |
| C 218 | 9302−351−0−49 | CG, 0.1 mfd, 50V, +80%, −20% |
| C 219 | 9363−234−7−06 | EL, 47 mfd, 25V, ±20% |
| C 220 | 0937−831−0−16 | EL, 100mfd, 25V, ±20% |
| C 221 | 9301−451−0−15 | CK, 100 pfd, 50V, ±10% |
| C 222 | 0937−831−0−16 | EL, 100mfd, 25V, ±20% |
| C 223 | 9363−234−7−06 | EL, 47 mfd, 25V, ±20% |
| C 224 | 9302−021−0−35 | CG, 0.01 mfd, 16V, ±10% |
| C 225 | 9302−021−0−35 | CG, 0.01 mfd, 16V, ±10% |
| C 226 | 9336−752−2−24 | CQ, 2200 pfd, 50V, ±5% |
| C 227 | 0937−803−3−16 | EL, 330 mfd, 6.3V, ±20% |

| Ref. No. | Part No. | Description |
|---|---|---|
| C 228 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 229 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 230 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 231 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 232 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 233 | 9363-221-0-06 | EL, 10 mfd, 16V, ±20% |
| C 234 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 235 | 9301-451-0-15 | CK, 100 pfd, 50V, ±10% |
| C 236 | 0937-834-7-06 | EL, 47 mfd, 25V, ±20% |
| C 237 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 238 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 239 | 9336-752-2-24 | CQ, 2200 pfd, 50V, ±5% |
| C 240 | 0933-451-0-44 | CF, 0.1 mfd, 50V, ±5% |
| C 301 | 0937-814-7-16 | EL, 470 mfd, 10V, ±20% |
| C 302 | 9302-351-0-49 | CG, 0.1 mfd, 50V, +80%, -20% |
| C 303 | 9302-351-0-49 | CG, 0.1 mfd, 50V, +80%, -20% |
| C 304 | 0937-814-7-16 | EL, 470 mfd, 10V, ±20% |
| C 305 | 9330-672-0-14 | CQ, 200 pfd, 100V, ±5% |
| C 306 | 9330-672-0-14 | CQ, 200 pfd, 100V, ±5% |
| C 307 | 9301-154-7-04 | CC, 47 pfd, 50V, ±5% |
| C 308 | 9301-154-7-04 | CC, 47 pfd, 50V, ±5% |
| C 309 | 9330-674-7-24 | CQ, 4700 pfd, 100V, ±5% |
| C 310 | 9330-674-7-24 | CQ, 4700 pfd, 100V, ±5% |
| C 311 | 9302-351-0-49 | CG, 0.1 mfd, 50V, +80%, -20% |
| C 312 | 9330-671-0-24 | CQ, 1000 pfd, 100V, ±5% |
| C 313 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 314 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 315 | 9336-753-9-34 | CQ, 0.039 mfd, 50V, ±5% |
| C 316 | 9330-674-7-24 | CQ, 4700 pfd, 100V, ±5% |
| C 317 | 9330-672-0-14 | CQ, 200 pfd, 100V, ±5% |
| C 318 | 9302-351-0-49 | CG, 0.1 mfd, 50V, +80%, -20% |
| C 319 | 9363-234-7-06 | EL, 47 mfd, 25V, ±20% |
| C 320 | 0937-831-0-16 | EL, 100mfd, 25V, ±20% |
| C 321 | 9301-451-0-15 | CK, 100 pfd, 50V, ±10% |
| C 322 | 0937-831-0-16 | EL, 100mfd, 25V, ±20% |
| C 323 | 9363-234-7-06 | EL, 47 mfd, 25V, ±20% |
| C 324 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 325 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 326 | 9336-752-2-24 | CQ, 2200 pfd, 50V, ±5% |
| C 327 | 0937-803-3-16 | EL, 330 mfd, 6.3V, ±20% |
| C 328 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 329 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 330 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 331 | 0937-831-0-16 | EL, 100 mfd, 25V, ±20% |
| C 332 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 333 | 9363-221-0-06 | EL, 10 mfd, 16V, ±20% |
| C 334 | 0937-821-0-06 | EL, 10 mfd, 16V, ±20% |
| C 335 | 9301-451-0-15 | CK, 100 pfd, 50V, ±10% |
| C 336 | 0937-834-7-06 | EL, 47 mfd, 25V, ±20% |
| C 337 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 338 | 9302-021-0-35 | CG, 0.01 mfd, 16V, ±10% |
| C 339 | 9336-752-2-24 | CQ, 2200 pfd, 50V, ±5% |
| C 340 | 0933-451-0-44 | CF, 0.1 mfd, 50V, ±5% |
| ⚠ C 400 | 0039-914-0-00 or 0039-918-0-00 | Spark Killer, 0.01 mfd, 250V |

| Ref. No. | Part No. | Description |
|---|---|---|
| Resistors | | |
| | | RD: Cabon Film<br>RDF: Fusible (Carbon Film)<br>RN: Metal Film<br>RNF: Fusible (Metal Film)<br>RS: Oxide Metal Film |
| R 101 | 0921-522-2-04 | RD, 22 ohm, 1/ 2W, ±5% |
| R 102 | 0920-811-0-14 | RD, 100 ohm, 1/ 4W, ±5% (Serial No. 54400001~54404000) |
| | 0920-819-1-04 | RD, 91 ohm, 1/ 4W, ±5% (Serial No. 54404001~) |
| R 103 | 0920-861-0-24 | RD, 1k ohm, 1/ 6W, ±5% |
| R 104 | 0920-862-2-24 | RD, 2.2k ohm, 1/ 6W, ±5% |
| R 105 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-861-2-34 | RD, 12k ohm, 1/ 6W, ±5% (Serial No. 54404001~) |
| R 106 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 107 | 0920-862-2-24 | RD, 2.2k ohm, 1/ 6W, ±5% |
| R 108 | 0920-862-2-34 | RD, 22k ohm, 1/ 6W, ±5% |
| R 109 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 110 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 111 | 0920-861-5-34 | RD, 15k ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% (Serial No. 54404001~) |
| R 112 | 0920-862-2-34 | RD, 22k ohm, 1/ 6W, ±5% |
| R 113 | 0920-864-7-34 | RD, 47k ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-863-3-34 | RD, 33k ohm, 1/ 6W, ±5% (Serial No. 54404001~) |
| R 114 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 115 | 0920-811-0-34 | RD, 10k ohm, 1/ 4W, ±5% |
| R 116 | 0920-861-0-54 | RD, 1M ohm, 1/ 6W, ±5% |
| R 117 | 0920-861-0-14 | RD, 100 ohm, 1/ 6W, ±5% |
| R 118 | 0920-861-2-44 | RD, 120k ohm, 1/ 6W, ±5% |
| R 119 | 0920-861-0-04 | RD, 10 ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-861-0-14 | RD, 100 ohm, 1/ 6W, ±5% (Serial No. 54404001~) |
| R 120 | 0920-861-5-44 | RD, 150k ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-861-2-44 | RD, 120k ohm, 1/ 6W, ±5% (Serial No. 54404001~) |
| R 121 | 0920-862-2-44 | RD, 220k ohm, 1/ 6W, ±5% |
| R 122 | 0920-861-0-14 | RD, 100 ohm, 1/ 6W, ±5% |
| R 123 | 0920-861-2-44 | RD, 120k ohm, 1/ 6W, ±5% (Serial No. 54400001~54404000) |
| | 0920-861-5-44 | RD, 15k ohm, 1/ 6W, ±5% (Serial No. 54404001~5) |
| R 124 | 0920-861-0-14 | RD, 100 ohm, 1/ 6W, ±5% |
| R 125 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 126 | 0920-866-8-24 | RD, 6.8k ohm, 1/ 6W, ±5% |
| R 127 | 0920-863-3-34 | RD, 33k ohm, 1/ 6W, ±5% |
| R 128 | 0920-865-1-44 | RD, 510k ohm, 1/ 6W, ±5% |
| R 129 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 130 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 131 | 0920-862-2-34 | RD, 22k ohm, 1/ 6W, ±5% |
| R 132 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 133 | 0920-863-3-24 | RD, 3.3k ohm, 1/ 6W, ±5% |
| R 134 | 0920-861-5-44 | RD, 150k ohm, 1/ 6W, ±5% |
| R 135 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 136 | Not used. | |
| R 137 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 138 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 139 | Not used. | |
| R 140 | 0920-811-5-14 | RD, 150 ohm, 1/ 4W, ±5% |
| R 141 | 0920-811-5-14 | RD, 150 ohm, 1/ 4W, ±5% |
| R 142 | 0920-811-5-14 | RD, 150 ohm, 1/ 4W, ±5% |
| R 143 | 0920-811-5-14 | RD, 150 ohm, 1/ 4W, ±5% |
| R 144 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 145 | 0920-812-2-24 | RD, 2.2k ohm, 1/ 4W, ±5% |

| Ref. No. | Part No. | Description |
|---|---|---|
| R 146 | 0920-811-0-34 | RD, 10k ohm, 1/ 4W, ±5% |
| R 147 | 0920-862-2-34 | RD, 22k ohm, 1/ 6W, ±5% |
| R 148 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 149 | 0920-861-5-14 | RD, 150 ohm, 1/ 6W, ±5% |
| R 150 | 0920-864-7-24 | RD, 4.7k ohm, 1/ 6W, ±5% |
| R 151 | 0920-865-6-34 | RD, 56k ohm, 1/ 6W, ±5% |
| R 152 | 0920-861-8-34 | RD, 18k ohm, 1/ 6W, ±5% |
| ⚠ R 153 | 0925-341-0-14 | RS, 100 ohm, 2W, ±5% |
| R 154 | 0920-863-9-24 | RD, 3.9k ohm, 1/ 6W, ±5% |
| R 155 | 0920-812-2-14 | RD, 220 ohm, 1/ 6W, ±5% |
| R 156 | 0920-861-5-34 | RD, 15k ohm, 1/ 6W, ±5% |
| R 157 | 0920-861-5-34 | RD, 15k ohm, 1/ 6W, ±5% |
| R 158 | 0920-865-6-14 | RD, 560 ohm, 1/ 6W, ±5% |
| R 159 | 0920-863-0-24 | RD, 3k ohm, 1/ 6W, ±5% |
| R 160 | 0920-865-6-14 | RD, 560 ohm, 1/ 6W, ±5% |
| R 161 | 0920-812-2-14 | RD, 220 ohm, 1/ 4W, ±5% |
| R 162 | 0920-861-5-34 | RD, 15k ohm, 1/ 6W, ±5% |
| R 163 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 164 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 165 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 166 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 167 | 0920-866-8-34 | RD, 68k ohm, 1/ 6W, ±5% |
| R 168 | 0920-811-0-34 | RD, 10k ohm, 1/ 4W, ±5% |
| R 169 | 0920-864-7-24 | RD, 4.7k ohm, 1/ 6W, ±5% |
| R 170 | 0920-867-5-04 | RD, 75 ohm, 1/ 6W, ±5% |
| R 171 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 172 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| R 173 | 0920-861-0-44 | RD, 100k ohm, 1/ 6W, ±5% |
| ⚠ R 174 | 0923-114-7-84 | RNF, 4.7 ohm, 1/ 4W, ±5% |
| ⚠ R 175 | 0923-112-2-84 | RNF, 2.2 ohm, 1/ 4W, ±5% |
| R 201 | 0926-511-0-32 | RN, 10k ohm, 1/ 4W, ±1% |
| R 202 | 0926-511-0-32 | RN, 10k ohm, 1/ 4W, ±1% |
| R 203 | 0926-512-7-32 | RN, 27k ohm, 1/ 4W, ±1% |
| R 204 | 0926-512-7-32 | RN, 27k ohm, 1/ 4W, ±1% |
| R 205 | 0926-514-7-32 | RN, 47k ohm, 1/ 4W, ±1% |
| R 206 | 0926-514-7-32 | RN, 47k ohm, 1/ 4W, ±1% |
| R 207 | 0926-511-6-22 | RN, 1.6k ohm, 1/ 4W, ±1% |
| R 208 | 0926-513-0-22 | RN, 3k ohm, 1/ 4W, ±1% |
| R 209 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 210 | 0926-516-8-12 | RN, 680 ohm, 1/ 4W, ±1% |
| R 211 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 212 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 213 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 214 | 0920-861-0-54 | RD, 1M ohm, 1/ 6W, ±5% |
| R 215 | 0926-513-9-12 | RN, 390 ohm, 1/ 4W, ±1% |
| R 216 | 0926-511-2-22 | RN, 1.2k ohm, 1/ 4W, ±1% |
| R 217 | 0926-513-6-22 | RN, 3.6k ohm, 1/ 4W, ±1% |
| R 218 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 219 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 220 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 221 | 0926-511-0-22 | RN, 1k ohm, 1/ 4W, ±1% |
| R 222 | 0920-861-0-54 | RD, 1M ohm, 1/ 6W, ±5% |
| R 223 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 224 | 0926-513-0-22 | RN, 3k ohm, 1/ 4W, ±1% |
| R 225 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 226 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 227 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 228 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 229 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 230 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 231 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 232 | 0920-815-6-04 | RD, 56 ohm, 1/ 4W, ±5% |
| R 233 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 234 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 235 | 0920-862-2-44 | RD, 220k ohm, 1/ 6W, ±5% |
| R 236 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 237 | 0920-863-3-14 | RD, 330 ohm, 1/ 6W, ±5% |
| R 238 | 0920-862-2-24 | RD, 2.2k ohm, 1/ 6W, ±5% |
| R 239 | 0920-862-2-44 | RD, 220k ohm, 1/ 6W, ±5% |
| R 240 | 0926-512-0-22 | RN, 2k ohm, 1/ 4W, ±1% |

| Ref. No. | Part No. | Description |
|---|---|---|
| R 241 | 0926-513-3-22 | RN, 3.3k ohm, 1/ 4W, ±1% |
| R 242 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 243 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 244 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 245 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 246 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 301 | 0926-511-0-32 | RN, 10k ohm, 1/ 4W, ±1% |
| R 302 | 0926-511-0-32 | RN, 10k ohm, 1/ 4W, ±1% |
| R 303 | 0926-512-7-32 | RN, 27k ohm, 1/ 4W, ±1% |
| R 304 | 0926-512-7-32 | RN, 27k ohm, 1/ 4W, ±1% |
| R 305 | 0926-514-7-32 | RN, 47k ohm, 1/ 4W, ±1% |
| R 306 | 0926-514-7-32 | RN, 47k ohm, 1/ 4W, ±1% |
| R 307 | 0926-511-6-22 | RN, 1.6k ohm, 1/ 4W, ±1% |
| R 308 | 0926-513-0-22 | RN, 3k ohm, 1/ 4W, ±1% |
| R 309 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 310 | 0926-516-8-12 | RN, 680 ohm, 1/ 4W, ±1% |
| R 311 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 312 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 313 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 314 | 0920-861-0-54 | RD, 1M ohm, 1/ 6W, ±5% |
| R 315 | 0926-513-9-12 | RN, 390 ohm, 1/ 4W, ±1% |
| R 316 | 0926-511-2-22 | RN, 1.2k ohm, 1/ 4W, ±1% |
| R 317 | 0926-513-6-22 | RN, 3.6k ohm, 1/ 4W, ±1% |
| R 318 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 319 | 0926-514-7-22 | RN, 4.7k ohm, 1/ 4W, ±1% |
| R 320 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 321 | 0926-511-0-22 | RN, 1k ohm, 1/ 4W, ±1% |
| R 322 | 0920-861-0-54 | RD, 1M ohm, 1/ 6W, ±5% |
| R 323 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 324 | 0926-513-0-22 | RN, 3k ohm, 1/ 4W, ±1% |
| R 325 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 326 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 327 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 328 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 329 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 330 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 331 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 332 | 0920-815-6-04 | RD, 56 ohm, 1/ 4W, ±5% |
| R 333 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 334 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 335 | 0920-862-2-44 | RD, 220k ohm, 1/ 6W, ±5% |
| R 336 | 0920-811-8-14 | RD, 180 ohm, 1/ 4W, ±5% |
| R 337 | 0920-863-3-14 | RD, 330 ohm, 1/ 6W, ±5% |
| R 338 | 0920-862-2-24 | RD, 2.2k ohm, 1/ 6W, ±5% |
| R 339 | 0920-862-2-44 | RD, 220k ohm, 1/ 6W, ±5% |
| R 340 | 0926-512-0-22 | RN, 2k ohm, 1/ 4W, ±1% |
| R 341 | 0926-513-3-22 | RN, 3.3k ohm, 1/ 4W, ±1% |
| R 342 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 343 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 344 | 0920-865-6-04 | RD, 56 ohm, 1/ 6W, ±5% |
| R 345 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |
| R 346 | 0920-861-0-34 | RD, 10k ohm, 1/ 6W, ±5% |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| Athers | | | |
| CN101, 102 | 0034−750−0−04 | Connector Pin, 4Pin | 2 |
| CN103 | 0034−750−0−08 | Connector Pin, 8Pin | 1 |
| CN104 | 0034−750−0−09 | Connector Pin, 9Pin | 1 |
| CN105 | 0034−750−0−13 | Connector Pin, 13Pin | 1 |
| CN106 | 0034−750−0−09 | Connector Pin, 9Pin | 1 |
| CN107 | 0034−740−0−03 | Connector Pin, 3Pin | 1 |
| CN108 | 0034−750−0−03 | Connector Pin, 3Pin | 1 |
| CP101 102 | 0034−785−0−04 | Connector Pin, 4Pin | 1 |
| LP400 | 0034−739−0−03 | Connector Pin, 3Pin | 1 |
| LT101, 102 | 0034−739−0−03 | Connector Pin, 3Pin | 2 |
| TP101∼115 | 0034−476−0−00 | Check Pin | 15 |
| CY101 | 1493−538−0−00 | Wire Connector, 2Pin | 1 |
| CY501 | 1493−536−0−00 | Wire Connector, 3Pin | 1 |
| CY502 | 1493−535−0−00 | Wire Connector, 3Pin | 1 |
| CY503 | 1493−534−0−00 | Wire Connector, 13Pin | 1 |
| CY504 | 1493−533−0−00 | Wire Connector, 9Pin | 1 |

## DIFFERENT MODELS OF THE PICK-UP HEAD.

This model uses a pick-up head with either Part No. 0020−008−0−00 (D-77-LM1) or 0020−006−0−00 (KSS-210A). When you replace the pick-up head, please use KSS-210A instead of D-77-LM1. With this replacement, the values of some electrical parts will have to be changed.

Please read Cautions of replacement of pick-up on pages 7∼10 before exchanging the pick-up head.

1. Please exchange the parts, referring to the below table.

A: Serial No. 54400001∼54404000
B: Serial No. 54404001∼

| Ref. No. | A | | B | |
|---|---|---|---|---|
| | Part No. | Description | Part No. | Description |
| 1 | 0020−008−0−00 | Laser Pick−up, D−77−LM1 (Audio Technica) | 0020−006−0−00 | Laser Pick−up, KSS−210A (Sony) |
| | Capacitors | | | |
| C126 | 0933−452−7−44 | CF, 0.27 mfd, 50V, ±5% | 0933−451−0−44 | CF, 0.1 mfd, 50V, ±5% |
| C129 | 9336−758−2−34 | CQ, 0.082 mfd, 50V, ±5% | 9336−753−3−34 | CF, 0.033 mfd, 50V, ±5% |
| | Resistors | | | |
| R102 | 0920−811−0−14 | RD, 100 ohm, 1/4W, ±5% | 0920−819−1−04 | RD, 91 ohm, 1/4W, ±5% |
| R105 | 0920−861−0−34 | RD, 10k ohm, 1/6W, ±5% | 0920−861−2−34 | RD, 12k ohm, 1/6W, ±5% |
| R111 | 0920−861−5−34 | RD, 15k ohm, 1/6W, ±5% | 0920−861−0−34 | RD, 10k ohm, 1/6W, ±5% |
| R113 | 0920−864−7−34 | RD, 47k ohm, 1/6W, ±5% | 0920−863−3−34 | RD, 33k ohm, 1/6W, ±5% |
| R119 | 0920−861−0−04 | RD, 10 ohm, 1/6W, ±5% | 0920−861−0−14 | RD, 100 ohm, 1/6W, ±5% |
| R120 | 0920−861−5−44 | RD, 150k ohm, 1/6W, ±5% | 0920−861−2−44 | RD, 120k ohm, 1/6W, ±5% |
| R123 | 0920−861−2−44 | RD, 120k ohm, 1/6W, ±5% | 0920−861−5−44 | RD, 150k ohm, 1/6W, ±5% |